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THE JOURNAL

OF THE

American Medical Association

Annual Subscription, $5.00 | PUBLISHED WEEKLY | Single Copies, 20 Cents

VOLUME 87, No. 7 | 535 North Dearborn Street, CHICAGO, ILL. | AUGUST 14, 1926

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on June 14, 1918. If undeliverable, return postage is guaranteed

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ANGINA PECTORIS AND PSEUDO-ANGINA

A CLINICAL STUDY WITH ESPECIAL REFERENCE TO LANCINATING PAIN *

EUGENE S. KILGORE, M.D.
SAN FRANCISCO

It is traditional for the chairman's address to contain a note of general comment or propaganda. This address has such a side purpose, and it will accomplish in large part its object if happily it can promote the idea of more detailed histories leading to better diagnosis and thence to better handling of patients with precordial pain.

The material for this study is summarized from the records of 253 patients complaining of pain in the region of the heart or, in two instances, pain elsewhere which was thought to be related to the heart or the aorta (stinging effort pain in both wrists with syphilitic heart and aorta, and viselike effort pain in the back in a case of hypertension angina). Pain obviously due to pleurisy, herpes, etc., is not included.

I questioned and examined the patients myself, all since 1919, when, following a visit to Sir James Mackenzie and being much impressed by his gospel of symptom study, I began collecting histories with as much symptom detail as possible, often by use of shorthand, recording verbatim statements of patients. Many records were omitted when unintelligence of patients or other things prevented securing sufficient data. All but one or two were studied in the office, and hence were ambulatory; and, except for rarely slight edema of the legs, all were free from the usual manifestations of congestive heart failure—quite a different group from those to be found in a hospital ward. The Veterans' Bureau referred 124 for consultation, and some others were referred by corporations employing men for the most part. The fact that most of these patients were young men makes the series unsuitable for studying age and sex distribution of precordial pain for the population at large. The composition of the series according to age, sex and the presence or absence of circulatory disease in general and angina pectoris specifically is shown in the accompanying table. The thirty-six cases diagnosed angina, it will be seen, show the usual predilection for males and for middle and advanced age.

The rules used for separating the "normals" from the pathologic group require explanation, and would in some individual cases be open to debate. In addition to routine examination and laboratory work, electrocardiograms and 2-meter roentgen-ray plates were obtained in the great majority of cases and in practically all those of doubtful classification. Definite structural changes, such as valvular disease or enlarged heart, were listed in the pathologic group together with conduction delay (increase in P-R or Q-R-S intervals), notching, TI or TII inversion, right or left ventricular preponderance, and hypertension. Where doubt existed, as in borderline blood pressure readings or the suggestion of right or left preponderance, the case was listed as one of circulatory disease. The "normals" were normal in the sense of lacking hypertension or demonstrable structural circulatory disease, and the diagnoses appearing on these records are effort syndrome, neurosis, fatigue, premature contractions, functional systolic murmur, and digestive or other diagnoses not relating to the circulation. The diagnoses of angina were made according to the usual rules of differential diagnosis, which space forbids reciting here further than to say that while some were mild as to the amount of suffering, all were considered liable to sudden death from the disease.

Distribution of Cases by Age, Sex and Presence or Absence of Circulatory Disease *

Age	Circulation Normal			Circulatory Disease			Total Normal and Disease
	Male	Female	Total	Male	Female	Total	
11 to 20	1	0	1	0	0	0	1
21 to 30	52	8	60	35	2	37	97
31 to 40	20	0	20	21 (2)	7	28 (2)	48 (2)
41 to 50	5	6	11	17 (6)	9	26 (6)	37
51 to 60	4	4	8	34 (17)	4	38 (17)	46
61 and up	0	0	0	12 (6)	12 (5)	24 (11)	24
	82	18	100	119	34	153 (36)	253

* Numbers in parenthesis indicate cases of angina.

TYPES OF PAIN

Although many descriptive terms were used by these patients to describe their painful sensations, it was found that most of them were readily classifiable into three main types, which may be termed (1) lancinating, (2) dull and (3) compression pain.

Lancinating pain is "sharp," "nipping," "jabbing," "sticking," "twisting," "grabbing," like a "stitch" or the "tearing of paper," "darting," "shooting," or, when more severe, like a "knife thrust," a "hat pin plunged through the heart," a "red hot needle" or a "stroke of lightning." The cardinal points of similarity are the instantaneous onset and the limited area involved. Usually the patient will indicate location by the tip of the finger placed on one or more spots below or above the left nipple or in the tricuspid area, or occasionally will indicate a narrow streak where pain flashes through

* Chairman's address, read before the Section on Practice of Medicine at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

from one nipple region to the other or diagonally from the precordia up across the sternum, etc. As a rule this pain disappears after one or several seconds as abruptly as it came, but may recur (usually but not always in the same spot) at intervals of some seconds or minutes. While mostly trivial, they range by easy gradations in severity up to a terrific "stroke," which

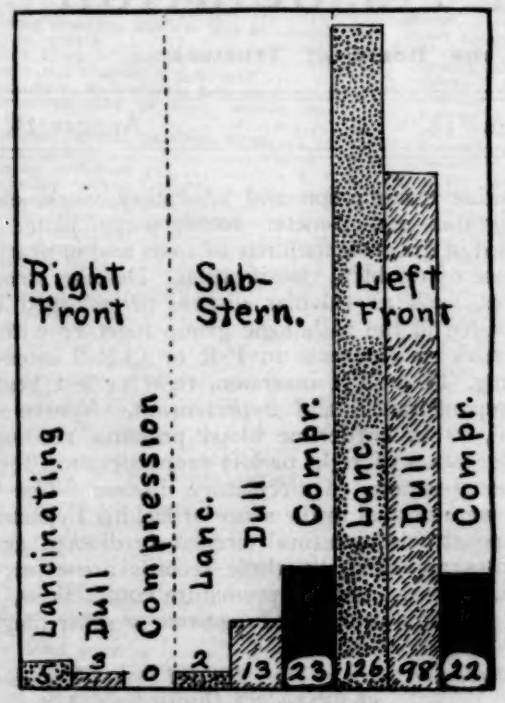

Chart 1.—Distribution of pain in the entire series.

fells one man instantly to the floor or crumples another into a helpless form on the seat of the automobile he has been quietly driving (two cases in the "normal" group). Severe lancinating pains are usually followed for some time by a dull, diffuse pain in the same region.

Compression pain comes next in point of homogeneity. It is "viselike," "cramping," "clamping," like a "belt about the heart or windpipe," "grinding," "crushing the bones," a pain like a "stone" or "petrified feeling" or a great weight, or like internal pressure, as of pent up gas in the region of the heart or sternum, in which case the patient may belch with or without relief. This category shades off into allied sensations of heaviness, fulness, etc., which are not really pain and not included in this summary—but the line of demarcation at times is doubtful. Compression pain may begin quickly but not so instantaneously as the lancinating pain, and the intelligent patient can usually recall distinct crescendo and decrescendo characteristics as it reaches its peak and subsides. The duration is usually a few minutes, sometimes seconds or hours. Topographically, it is diffuse and with ill defined borders. One case here classified as substernal involved the whole chest.

What is here designated as dull pain is the assortment remaining after taking out those with distinctive lancinating or compression qualities. The commonest descriptive term is "dull ache." Others are simply "ache," "sore feeling" (not including skin tenderness), "burning," "gnawing," "drawing," "dead pain," "tired pain," "dull heavy" or "pressing pain" (the latter two being here included if the pressure element appears to be subordinate—some doubt at times). Dull pain is usually of gradual onset and offset and lasts from minutes to months. It often occupies a palm-sized area, sometimes larger, sometimes (especially "burning") the size of a half dollar.

Chart 1 shows the distribution of these three pain types in the entire series, as they occur under the sternum and in the precordial region. A few patients describe similar pains over the right front of the chest, and these are also shown in the chart. Numbers at the bottom of columns indicate numerical frequency of the type of pain to which they refer. Sometimes two or three types of pain are described by the same patient, so that the list of pains (292) is larger than the number of cases (253).

It will be seen that lancinating pain greatly predominates, and with few exceptions is in the precordial region; that dull pain comes next in frequency, and is also mostly precordial but not infrequently substernal; and that compression pain, while distinctly less frequent in general, predominates in the central chest location, and is about equally common in the precordia.

Charts 2, 3 and 4 show, respectively, the pain distribution in the group of 100 "normals," in thirty-six cases of angina pectoris, and in the total circulatory disease group of 153 cases (including angina).

The small angina group is conspicuous for its paucity of lancinating pain. Only one of the four instances was unassociated with other types of pain. This patient was a physician, aged 59, who suffered all one night an extremely severe sharp, piercing pain through the heart region and radiating into the left arm. Examination, including an electrocardiogram, was negative, and after six years he is still well, active and has never had a recurrence of pain—all of which throws some doubt on our original diagnosis of angina. On the other hand, the angina group nearly monopolizes the compression pain, especially under the sternum, where seventeen are angina, three other types of circulatory disease, and three "normals."

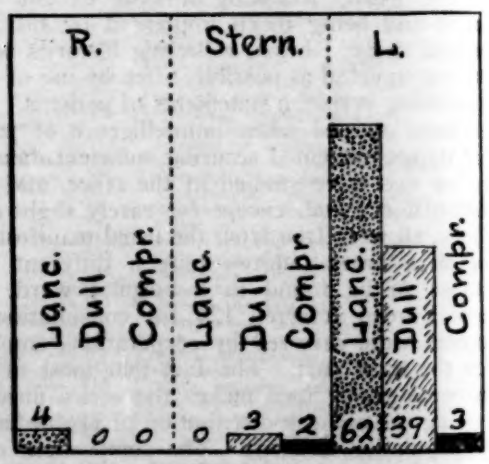

Chart 2.—Distribution of pain in normal (100) cases.

Lancinating pain is about equal in frequency in the "normal" and general pathologic groups (charts 2 and 4); but when the group sizes are considered it is relatively more common among "normals": 66 per cent of "normals" and 44 per cent of the general circulatory disease group.

Dull pain occurred in 42 per cent of the "normals," 53 per cent of the general circulatory disease group other than angina, and in 28 per cent of the angina

cases; but, whereas the location of this pain in the angina group was nearly equally divided between sternum and precordia, the others show a strong predilection for the precordia.

From these descriptions of pain types and their locations, it appears that in a given case, when the question of angina is raised, the quality, timing and topography

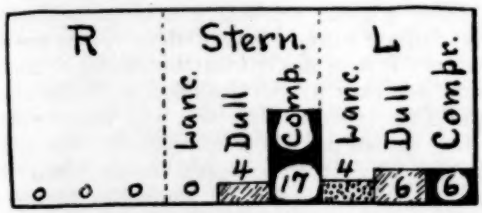

Chart 3.—Angina Pectoris (thirty-six cases).

of the pain often furnish strong presumptive evidence. Other important data to be derived from histories relate to pain radiation, exciting causes, means of relief, etc.

PAIN RADIATION

Among the 100 "normals," fifteen described radiation; one of substernal compression radiating to the back; five of precordial dull pain to the left arm, one each to both arms, the left scapula, the left clavicle, the neck and the epigastrium; and four of lancinating precordial pain all to the left arm. One of the latter described his sensation as like a "grab" or "knife thrust" near the left nipple, passing quickly out through the left arm and instantly disappearing when it reached the end of the little finger, "like an electric shock." Several years previously, when the symptom began in the course of an acute pleurisy, this sensory phenomenon was repeated regularly for a long time with each heart beat. Now it is only an occasional occurrence. It has never been related to effort, excitement or meals.

Among the 153 patients with circulatory disease, fifty-three described pain radiation, and twenty-five of these belong to the thirty-six angina cases. Of the latter, the left arm alone is recorded fourteen times, both arms seven times, both axillae once, the neck and jaw once, the abdomen once, and the right shoulder once.

For the remainder of the pathologic group, the radiation tabulation is as follows: left arm, fourteen; both arms, one; neck, three; left shoulder, four; left axilla, two; left scapula, one; midback, one; abdomen, one; across sternum, one.

Among these fifty-three instances of radiation in the whole disease group lancinating pain at the point of initiation occurred fifteen times; dull pain, seventeen times, and compression pain, twenty-one times.

RELATIONS TO PHYSICAL EXERTION, MENTAL EXCITEMENT AND FOOD INTAKE

All but one of the thirty-six angina patients recalled definite and usually constant and immediate relation of physical effort to the onset of pain (two instances of lancinating pain; seven, dull; twenty-six, compression); six of them also recognized mental excitement as an immediate cause of pain (two, dull; four, compression pain); and twenty-three were conscious of being more susceptible after meals (four, dull; nineteen, compression). Only one thought that his pain (dull) was more likely to occur some time after completion of effort.

In the remainder of the pathologic group (117 cases); twenty-two (thirteen, lancinating; six, dull; three, compression) recognized muscular effort at times at least to have an immediate relation to pain; six (four, lancinating; two, dull), a delayed relation; eleven (five, lancinating; five, dull; one, compression) thought excitement had at times an immediate relation; four (three, lancinating; one, dull), a delayed relation; and five (three, lancinating; two, dull) recognized increased susceptibility following meals.

Among the 100 "normals," sixteen (nine, lancinating; five, dull; two, compression) described at least at times immediate relation to effort; sixteen (eight, lancinating; eight, dull), a delayed relation; two (both dull), an immediate relation to excitement; five (one, lancinating; four, dull), a delayed relation; and three (dull) thought attacks more likely to occur after meals.

The parenthetical figures in this analysis are too small to form a basis for any conclusions, but suggest that possibly dull pain is less commonly a sequel of effort in the nonangina pathologic group than among "normals"; that mental excitement is more often followed by all types of pain in the general pathologic group, and that these "normals" are more prone than others to experience delayed association between effort and dull or lancinating pain.

The difference between the angina cases and all the others, however, is even more striking than the figures indicate. With the former, the relations described are definite and immediate, and the information is often given voluntarily in advance of questions. The others rarely volunteer their statements of these pain relations, and when the questions (inevitably more or less leading questions) are put, often have to pause before making an affirmative answer.

ASSOCIATED MENTAL STATES

I have often been disappointed in the effort to recognize the clear cut distinction in psychic reaction toward the pain which is commonly assumed to exist between angina and other conditions that simulate it. Certainly, some of the most badly frightened patients in this series were in the "normal" group with severe lancinat-

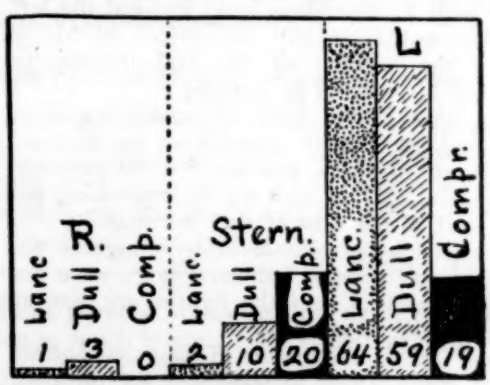

Chart 4.—Circulatory diseases (152 cases).

ing pain; but it was difficult to decide later whether their fear at the time was fear that they might have angina or simply the conviction of impending dissolution, which is supposed to characterize true angina.

On the other hand, the majority of the thirty-six angina patients failed to describe the typical "angor animi"; and, in fact, most of those whose life tenure seemed most insecure, including several who have since died, suffered comparatively little psychic reaction with their attacks.

A quite different matter is the rôle of mental state as a factor in pain causation. Fear, conscious or subconscious, plays an indeterminate but undoubtedly important part, frequently as an aggravant and at times apparently as the sole etiologic agent, in nonangina precordial pain. One robust young man with circulatory apparatus normal in every respect, except for some premature contractions, dated all his precordial pain, as well as shortness of breath, exhaustion, etc., from the day he was rejected for employment on account of supposed heart block. Many of the histories in the "normal" as well as the general pathologic group indicate the preoccurrence of psychic traumas of this kind, the effect of which it is usually quite impossible to separate from other factors.

RESPIRATION, POSITION OF BODY, GENERAL HEART CONSCIOUSNESS, AND CUTANEOUS SENSITIVENESS

During attacks of angina it is quite common for the patient to feel "as if the wind is cut off" by the constricting sensation of the pain, or he may breathe naturally or may expand the chest in an effort to relieve the pain. On the other hand, patients in the other groups, when they describe any respiratory relations to the pain, usually say they hold the breath for fear of increasing the pain. "If I breathed, it would tear me in two" is an example of these descriptions, especially of some of the more severe cases of lancinating pain.

Certain motions of the trunk, use of the left arm, or lying a certain way in bed were designated as exciting causes of pain in various nonangina cases. Others (not referring to orthopnea) objected to certain positions in bed without reference to pain production, their descriptions indicating most often consciousness of heart action, vague discomfort, liability to nightmares, etc. Such position aversion was noted in 19 per cent of the angina cases, 32 per cent of the remaining pathologic group, and 38 per cent of the "normals." Most often the left lateral reclining position is the one avoided, but some avoid the right side, some both sides, others the back. A pathologic condition of the heart seems to have little, if anything, to do with this. One fellow with a tremendous heart avoided the left lateral decubitus not from any discomfort of his own but because the rocking of the bed thereby produced prevented his wife from sleeping.

Palpitation in the sense of consciousness of heart action independent of exercise or excitement, extrasystoles, and the like, was noted in 25 per cent of the angina cases, 51 per cent of the remaining pathologic group, and 53 per cent of the "normals."

Cutaneous hyperesthesia or hyperalgesia was noted at times in all groups, but most cases were seen some time after attacks, and the figures are too small for profitable discussion.

Space forbids discussion of pain mechanism or of etiology further than to state that the nonangina pain symptoms were often preceded by infectious disease, overfatigue, etc., and the subjects were largely constitutionally susceptible nervously.

Means of pain relief were the usual ones in the angina group (cessation of effort, nitrites); in the others, general regulation of rest and exercise, psychotherapy and bromides.

COMMENT

Notwithstanding the still boiling discussion of theories of etiology and the considerable variation in symptomatology, the term angina pectoris has continued for the century and a half since Heberden's writings to receive general approbation for the reason that the symptom complex, while varying much in individual lines, nevertheless has a fairly definite general physiognomy and always carries the portent of sudden death.

Not so with other types of pain in or near the heart. For these, many names have been used, such as pleurodynia, toxic angina, secondary angina, nervous heart pain and fatigue pain. Most of these terms are derived from ideas of pain mechanism or etiology; and while all would welcome a well founded etiologic classification, the fact remains that we still know very little about the causes of these pains. If the pleura is responsible, why is it so much more often the left pleura? A "toxic" cause, of course, is highly speculative. "Secondary angina" implies a relation to angina which is uncertain. "Nervous heart pain" and "fatigue pain" are undoubtedly at least partially descriptive of many cases, but such a division of the cases in this series would involve much doubt and overlapping. The relation of effort to pain in the "normal" and general pathologic groups in this series does not show the closer association in the latter that would be expected if fatigue were an important immediately precipitating factor.

For these reasons I use the old and latterly much condemned term pseudo-angina. It sounds as if we do not know exactly what we are talking about; but that, unfortunately, is exactly the fact. It does convey adequately the conception, which is of paramount practical importance, of a condition or group of conditions liable to be confused with angina but which is not angina.

One can be a good physician without knowing the theories of precordial pain, but he cannot, without grave injustice, undertake to advise a patient with such pain unless he is prepared to discriminate intelligently between angina and pseudo-angina; for a patient mistakenly diagnosed as having angina may suffer thereby as much as another with a very bad operative result at the hands of an incompetent surgeon.

Cases of outspoken angina are not often missed. Those otherwise normal with minor aches or little "nipping" or "sticking" precordial pains seldom puzzle the physician. But the mistaken diagnosis of angina is likely to occur (1) where pseudo-anginal pain is associated with age, sex, blood pressure, valvular disease or other conditions suggesting angina (in which event it is sometimes forgotten that none of these things prevent one from having pseudo-angina); or (2) when pseudo-anginal pain happens to be severe. This is usually lancinating pain ("stroke of lightning," "red hot needle," plunged through the heart).

From some descriptions of angina pectoris, one is led to feel that knifelike, stabbing pain is a common characteristic of the disease. My own experience, so far as it now goes, gives the opposite impression. Of these thirty-six cases which I believed to be genuine angina, only four patients described lancinating pain, and in only one of these was it unassociated with other pain suggesting the compression quality. And furthermore, as already stated, its duration in this case was longer than the ordinary lancinating pain, and also the later history throws some doubt on the original diagnosis.

While this angina group is too small to support more than a pretty strong doubt as to the propriety of including lancinating pain at all in the symptom picture of

angina, the pseudo-angina cases are numerous enough to justify the conclusion that lancinating pain is highly characteristic of this condition, and this is the especial point which I feel has lacked and deserves recognition. By lancinating pain is meant a sharp, shooting or darting pain felt in a point or streak, reaching its full intensity instantly, and usually ceasing in from one to several seconds quite as suddenly and usually without perceptible decrescendo, but, if severe, to be followed often for an indefinite period by a dull and diffuse pain and often increased cutaneous sensitiveness. It usually does not radiate, but may do so along the ulnar distribution and sometimes elsewhere, occasionally synchronizing with heart beats as Lewis has previously noted. Effort or mental excitation seldom seems to precipitate it, but the following rest period may be one of greater susceptibility. Meals have little, if any, effect. Certain motions of the left arm or trunk or turning a certain way in bed can occasionally be counted on to produce it. It is the commonest type of precordial pain, at least in the particular material composing this series; in fact, it is probably more common than the figures indicate, because it is usually mild and often forgotten by normally constituted persons. But from these mild cases it can be traced up through easy gradations, without essential modification except in intensity, to instances of terrific pain with an associated mental state closely simulating that of genuine angina.

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CHRONIC PERICARDITIS

THE CLINICAL AND EXPERIMENTAL ASPECTS *

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Inflammation of the pericardium, be it an acute or a chronic process, represents one of the pathologic lesions of the body which the clinician rarely diagnoses and which is discovered only at necropsy. The explanation of this observation lies not so much in the want of clinical data that may have a bearing on the diagnosis, but rather on the failure of the physician to make use of all the available facts disclosed by complete and thorough examination of the patient. The so-called pathognomonic signs are looked for, and, if not observed, the case is dismissed as one without pericardial involvement. Conclusive signs are rare. In this condition, as "in most other inner disease, we have to regard the case as a whole, comparing all the symptoms and signs and giving to each its due perspective." [1]

There is another factor that may be responsible for the inability of the physician to diagnose pericardial lesions which we will discuss briefly. This lies in the dogmatic statements of textbooks that such and such signs are present, when actually they are present only occasionally or are entirely absent. In acute fibrinous pericarditis it is taught that a friction rub with quite typical characteristics is present. Actually, a friction rub is often an evanescent, fugitive sign that may be heard at one time and not at another time. In pericarditis with effusion, there is a host of signs that are esteemed as virtually pathognomonic, yet these signs represent only the effects of enormous collections of fluid in the pericardial sac. When the clinician fails to find these he is at a loss to know whether fluid is present or absent.

Still a third factor that minimizes our attention to pericardial disease is the vividness of the symptoms, produced secondarily, of associated cardiocirculatory failure. These clear-cut symptoms conceal the less definite, less obvious signs of pericardial disease which may be responsible for the circulatory embarrassment of the patient and which should be relieved before efficient help can be given the struggling, inefficient circulation.

These three conditions are of importance; but probably of greater importance in failure to diagnose pericardial disease lies the well known fact that pericarditis rarely if ever exists as a primary disorder, but is secondary to some other pathologic condition within the body. This statement applies to each of the three important types of pericarditis, the fibrinous, adhesive or effusive types, which occur only secondarily to or as a complication of rheumatic fever, tuberculosis, pneumonia, sepsis, nephritis or some other more remote cause.

In an endeavor to discover why pericarditis is generally overlooked and to see whether we could not find some additional data that might aid in the diagnosis of this disease, we have reviewed all necropsy and clinical records of proved cases of pericardial involvement at the Charity Hospital within the last five years. We also have performed a series of experiments on dogs, studying them particularly from the roentgenologic and electrocardiographic standpoint.

TABLE 1.—*Total Number of Necropsies Done at Charity Hospital*

Jan. 1 to Dec. 31, 1925	408
During year of 1924	295
During year of 1923	303
During year of 1922	378
During year of 1921	336
Total	1,720

TABLE 2.—*Cases Showing Pathologic Conditions of Pericardium*

Jan. 1 to Dec. 31, 1925	55
During year of 1924	67
During year of 1923	51
During year of 1922	68
During year of 1921	64
Total	305

It is our purpose to discuss first the pathologic data and then to touch briefly on the experimental work.

THE PATHOLOGIC DATA

The necropsy protocols of the Charity Hospital for the last five years were studied. The clinical history of those cases in which some pericardial condition was given as one of the contributory causes of death and those in which such was presumed by us to be the case were gone over in detail. The incidence of necropsies at the hospital during this period is given in Table 1.

Among these 1,720 necropsies, record is made of 305 cases that showed pericardial involvement, distributed by years as detailed in Table 2. The pericardial involvement consisted of (*a*) increased fluid in

* From the Department of Medicine, Tulane University of Louisiana.
* Read before the Section on Practice of Medicine at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Allbutt, T. C.: Diseases of the Pericardium, Oxford Medicine, Oxford University Press **2**: 280, 1920.

the pericardial cavity, 50 cc. or more; (*b*) pericardium adherent to the heart, or (*c*) pericardium adherent to the chest wall.

Of these 305 cases, thirty-nine presented pericardial lesions which the pathologist believed were contributory causes of death. From a study of these figures it may be seen that pericarditis, either acute or chronic, was found in 11.9 per cent of the bodies at necropsy. These figures are somewhat higher than the incidence of pericarditis found by Wells.[2] In 1,048 necropsies he found that there was evidence of acute (4.5 per cent) or chronic (6.8 per cent) pericarditis in 128 cases, or 11.3 per cent. The combined figures (11.3 per cent) of the two types of pericarditis are closely similar to our total percentage.

Locke,[3] on the other hand, found in a study of the 3,683 necropsies at the Boston City Hospital for a period of nineteen years that pericarditis was present in an acute form in 4 per cent of all necropsies and in a chronic form in 12.6 per cent. It must be borne in mind, however, that various degrees of pericarditis may exist as pathologic findings in a goodly number of cases without any evidence either clinically or pathologically of the lesion having had any effect on the heart or circulation, or contributing to the death of the patient. It is for this reason that we have analyzed only sixty-eight case histories, disregarding the other 237 cases

TABLE 3.—*Cases in Which Pericardial Condition Was Considered as One of the Causes of Death*

Jan. 1 to Dec. 31, 1925	16
Jan. 1 to Dec. 31, 1924	10
Jan. 1 to Dec. 31, 1923	10
Jan. 1 to Dec. 31, 1922	16
Jan. 1 to Dec. 31, 1921	16
Total	68

of pericardial involvement which make up 88.1 per cent of the whole number.

In addition to the thirty-nine cases that the pathologist thought were responsible in part for the death of the patient, there were twenty-nine cases in which from the records of the necropsy and the history of the patient it was believed that the pericardial condition also played a part in hastening death. The yearly incidence of these more serious lesions is detailed in table 3.

ANALYSIS OF CASE RECORDS

In our analysis, the cases of pericarditis have been divided into four groups: (1) the acute or subacute type of serofibrinous or hemorrhagic pericarditis; (2) the type with complete obliteration of the pericardial cavity; (3) the type with partial obliteration, and (4) that with parietal adhesions only.

In the first group we find that the average weight of the heart in seventeen cases in which acute pericarditis was presumed to exert a contributory effect on the death rate was 363.2 Gm. The left ventricular thickness was 17.4 cm., and that of the right ventricle was 6.1. The average length of the body in these seventeen cases was 161.7 cm. Five other cases were found which presumably exerted a contributory effect in causing death. The figures in these cases showed that the average weight of the heart was 300 Gm.; left ventricular thickness, 21 mm.; right ventricular, 4.9 mm.; the average length of the body was 169.7 cm. The etiology in the majority of the cases of acute or subacute pericarditis was found to be some acute process, most frequently in the thorax, as lobar pneumonia, lobular pneumonia or acute endocarditis. Other causes included peritonitis, septicemia, and terminal nephritic lesions in three of the cases.

Complete obliteration of the pericardial cavity occurred in fifteen cases. The cause of death in the majority of these cases was cardiac failure. The average weight of these fifteen hearts was 443 Gm. The measurement of the left ventricle was 20 mm.; of the right ventricle, 6.8 mm.; the average length of the body was 166.6 cm. In this group of fifteen cases one case was found in a small child with naturally small heart. This reduces materially the average heart weight. If we exclude this one case, we find that the average heart weight in complete obliteration of the pericardial cavity is 463.9 Gm.

We have analyzed twenty-one cases in which there was partial obliteration of the pericardial cavity. In ten of these cases the pericardial lesion was held to be a contributory factor in the cause of death. In these ten cases the average heart weight was 536.6 Gm.; the width of the left ventricle wall was 23 mm.; of the right, 7.7 mm., and the average length of the body, 167.7 cm. In all cases in which the pathologic lesion was held to be a contributory effect, the average heart weight was 503.3 Gm.; left ventricular thickness, 18.6 mm.; right, 6.8; average length of the body, 161.2 cm. In these last two groups were three cases of aortic insufficiency which materially increases the average heart weight.

Parietal adhesions between the pericardium and the chest wall were found in ten cases. In these ten cases, the average heart weight was 384 Gm.; left ventricular measurement, 25 mm.; right ventricular, 7 mm., and average body length, 169.6 cm.

THE PATHOLOGIC DATA

We have laid stress in our account of the several types of pericarditis on the heart weight and length of the body and the thickness of the ventricle walls, as we feel that it is important to gain some information as to the effect of pericardial disease on the heart and the development of ventricular hypertrophy. We noticed that in acute pericarditis, as was to be expected, very little effect was produced in the cardiac size by the acute lesion. On the other hand, in the chronic conditions in which the pericarditis is presumed to have persisted for some time, we find that the average weight of the heart, when there is complete obliteration of the pericardial cavity, is nearly 100 Gm. greater than in the acute types. Partial obliteration of the pericardial cavity apparently resulted in a heart in which the average weight was 72 Gm. heavier than it was in those in which there was complete obliteration of the pericardial cavity. This is to be explained, in part at least, by the occurrence of aortic insufficiency in three of the patients. These three hearts were very much larger than any of the hearts in which there was obliteration of the pericardial cavity, the average heart being nearly 300 Gm. more than when there was pericardial obliteration. In none of the cases that we studied in which there was chronic pericarditis did we find hearts that in any way approached in size the enormous bovine hearts of aortic regurgitation. This is contrary to the generally accepted teaching that pericarditis of the

2. Wells, H. G.: The Pathology of the Healed Fibrous Adhesion of the Pericardium, Am. J. M. Sc. **123**: 241 (Feb.) 1902.
3. Locke, E. A.: The Occurrence and Diagnosis of Pericarditis, Boston M. & S. J. **175**: 591 (Oct. 26) 1916.

chronic adhesive type, more particularly with adhesions of the chest wall, is responsible for enormous cardiac hypertrophy. The effect of parietal adhesions only on cardiac hypertrophy is apparently not particularly conspicuous, and the disturbance of the pathologic physiology of the organ seems to be negligible. In the ten cases in which such adhesions were present, the figures are relatively close to the figures given for the acute types of pericarditis.

CLINICAL DATA

The facts elicited from the case histories of the patients taken while under observation in the wards give very little information that might be of value in diagnosis, but do give some interesting etiologic facts. It was found that the acute pericarditis occurred in persons of an average age of 31.5 years. Of these persons, sixteen were negroes and six were white patients; sixteen were males and six were females. Complete obliteration of the pericardium was found almost without exception in older persons. Except for one subject of 15 years, none of these patients were under 40. The average age was 58.7 years. Eight were negroes; seven belonged to the white race. All of these patients were males. These figures are of some interest because of the prolonged duration of life in all except one patient, again showing that obliteration of the pericardial sac itself takes a minor place in producing cardiac symptoms.[4] In all these patients the condition had apparently existed for a great many years, and many of them lived well past the age of 60.[5] The same generalization applies to the patients with partial obliteration of the pericardial cavity. The average age at time of death was found to be 50 years, and again these figures were materially reduced by the presence of two subjects aged 21 and 23 years. It is interesting to note that of the twenty-one patients with partial obliteration of the pericardial cavity, twelve had syphilis, an etiologic agent not generally held responsible for pericardial disease of this particular type.

The parietal adhesion group died as a result of acute infection and were therefore relatively young, averaging 39 years. Two of these patients, both over 60 years of age, died as a result of cardiac failure.

The subjective symptoms in none of these case histories that we studied brought out any information of value. Most of the patients were either suffering from cardiac failure with the usual symptoms, or had some intercurrent condition that obscured the subjective symptoms referable to the heart. The records of the physical examinations disclosed in only two cases any notes which indicated that there was a suggestion of pericardial disease on inspection of the patient. The hearts were uniformly found to be enlarged on percussion when there was enlargement of the heart as shown by the necropsy. Various types of murmurs were heard, but no one of them was characteristic in any sense. A prenecropsy diagnosis of pericardial disease was not made in any case, although a study of the records discloses that pericardial lesions were recognized or presumably thought to be present in many instances but were not believed to have any bearing on the primary disease of the patient.

RECOGNITION OF CHRONIC PERICARDITIS

We are not interested in the acute types of pericarditis at this time—more particularly the acute types associated with friction rub and with large quantities of fluid in the pericardial sac, as we believe that these conditions can be recognized and are recognized in the majority of cases. The study of our clinical data discloses that chronic pericarditis is rarely recognized. This is in agreement with Wells, Locke and Riesman,[6] as well as with similar statements in most textbooks in the authors' description of chronic pericarditis.

The symptomatology of chronic pericarditis seems to belong entirely in the silent group, as there are no symptoms until the development of cardiac failure that might suggest the presence of pericardial disease. It is necessary to depend almost entirely on the examination of the patient. As to the possibility of an adherent pericardium being present without symptoms or signs, we may assume such to be the case (1) in the young person with a chronic valvular disorder associated with considerable hypertrophy of the heart; (2) when there is valvular disease of the heart which fails to respond to digitalis, and (3) in those patients whom the physician had the opportunity of seeing when an acute pericardial lesion was demonstrable.

The physical signs of adherent pericardium depend almost entirely on the presence of adhesions to the chest wall. These signs include the common phenomena of systolic retractions of the interspaces. Regelsberger[7] lays considerable stress on a graphic method of demonstrating diastolic bulging and systolic retraction of the apex. The classic sign of Broadbent depends on adhesions from the pericardium to the posterior parietes causing a systolic retraction between the eleventh and twelfth ribs posteriorly. The fixation of the heart to the diaphragm may also play a part in causing this sign, as in a certain number of cases the pull on the diaphragm results in retraction of the lateral interspaces to which the diaphragm is attached. The pulsus paradoxus may or may not be present. It is indicative of adhesions that compress the pulmonary veins or the aorta when the chest is expanded.[8]

Extensive adhesions to the chest wall anteriorly produce physical signs which are often very pronounced, as marked retraction of the whole chest wall, but fortunately such extensive involvement occurs only rarely. Other palpatory and visual signs include fixation of the apical impulse when the patient is changed from the left lateral or the right lateral or the upright position. Precordial bulging is occasionally seen, and occasionally we also note Friedrich's sign or diastolic collapse of the veins in the neck.

Percussion yields very little information of definite value. Sir Clifford Allbutt mentions the fact that the percussion note and the percussion sense of resistance are decidedly woody in character. The fixation of the heart when this condition is present can be demonstrated by percussion as well as by palpation and inspection. On auscultation there is nothing characteristic. It has been said that an adherent pericardium may mimic every possible cardiac lesion. It must be borne

4. Laënnec wrote that Corvisart was in error when he stated that one cannot live and be healthy with complete and immediate adherence of the heart to the pericardium. "I am compelled to believe from the number of cases of this kind that I have met that the adherence of the heart to the pericardium does not often disturb the exercise of its functions" (Laënnec, R. T. H.: Traité de l'auscultation médiate et des maladies des poumons et du cœur, ed. 4, augmenteé par M. Andral, Paris, 1837, p. 381).

5. Vaquez (Diseases of the Heart, Philadelphia, 1924, p. 227) writes that "if it seems exceptional in the aged, this is because it is scarcely compatible with long life."

6. Riesman, D.: Pericarditis: Its Symptoms and Diagnosis, Am. J. M. Sc. **128**: 466 (Sept.) 1904.

7. Regelsberger: Deutsches Arch. f. klin. Med. **147**: 129 (May) 1925.

8. Katz, L. N., and Gauchat, H. W.: Observations on Pulsus Paradoxus, Arch. Int. Med. **33**: 371 (March) 1924.

in mind, however, that adherent pericardium is very frequently associated with valvular heart disease and that even if we know that the valvular heart lesion is present, it does not vitiate the diagnosis of adherent pericardium, as the etiology of the two conditions is frequently the same. An auscultatory sign frequently overlooked when present is that at times auscultation posteriorly under the angle of the scapula may demonstrate some alteration in the respiratory rhythm, the normal vesicular sounds heard there becoming bronchovesicular.

In looking over the signs of adherent pericardium as described by authors many years ago, we made note of some interesting observations. Corvisart [9] avers that notwithstanding what has been said about the signs of an adherent pericardium, the diagnosis is extremely difficult to establish positively. He attaches particular value to the weakened impulse which is dull and low, obscure and abortive. Aran,[10] writing in 1844, noted a peculiar absence of the second sound of the apex which he considered to be a valuable diagnostic sign, and he noted also a flattening of the side of the chest as if drawn inward as another sign of some value. Potain,[11] in 1856, describes a throb which precedes the true impulse when there is adherent pericardium. Foster [12] lays great stress on the peculiarity of the impulse which produces very little movement of the chest wall, although this impulse is strong, decidedly obvious and considerably prolonged.

ROENTGENOLOGIC DIAGNOSIS

One of the roentgenologic diagnostic points considered of some moment by roentgenologists is the marked enlargement of the heart. This does not in any way, however, explain the cause of the enlargement of the heart. Various phenomena are produced by adhesions to various portions of the chest wall or of the diaphragm, such as tugging of the diaphragm, elevation of the diaphragm, and immobility of the heart.

ELECTROCARDIOGRAPHIC DIAGNOSIS

When there is fixation of the heart by extensive adhesions, it has been shown by Dieuaide [13] that there is a fixation of the electrical axis of the heart. Except for this phenomenon, there is no other positive phenomenon that we know of which can be shown by the electrocardiograph to be of value in diagnosing an adherent pericardium.

EXPERIMENTAL DATA

We have attempted to produce pericarditis in forty-two dogs. The technic employed in producing these lesions experimentally has varied. In the first six animals, tincture of iodine was injected into the pericardial cavity, but the dogs died almost immediately.[14] In the remaining dogs, in the first few we have used a staphylococcus antigen, which was found unsatisfactory, but finally we began to use permutit. This insoluble, inorganic preparation has been found most satisfactory on account of its mechanical irritant effects. Under intratracheal ether anesthesia, the pericardium is entered by cutting through the sternum and going then directly into the pericardial cavity with a fine hypodermic needle, and the permutit suspension is injected. None of the dogs that we have operated on have been killed, as we were anxious to study the long continued effect on the heart of adhesion of the epicardium to the pericardium and of adhesions from the pericardium to the chest wall. Twelve dogs have died of various causes. In three of these animals there was complete obliteration of the pericardinal cavity; in one of them there was partial obliteration of the cavity; in six, extensive fibrous bands from the pericardium to the anterior chest well, and in two, a purulent pericarditis. Both of the latter two animals died eight and six days, respectively, after operation. Dog 35, with complete obliteration of the cavity, died thirty-three days after operation. The other three dogs lived a shorter time. Dog 32, which had adhesions to the anterior chest wall, lived sixty-five days and is the only animal that lived a comparatively long period following operation except those which are living at the present time. Some of these animals are living some months now and are apparently well and healthy. Dog 35 weighed 6.4 Kg. His heart weight was 51 Gm., and the ratio of heart weight to body weight was 0.00796. This figure is approximately the same as the average heart weight-body weight ratio in a series of 200 normal dogs, in which it has been found to be 0.00798.[15] Dog 35, with partial obliteration of the sac, weighed 7.2 Kg. and his heart weight was 57 Gm.; that is, a heart weight-body weight ratio of 0.00792. These ratios in two animals show that in the relatively short time the animals lived after operation the pericardial involvement had had no effect on cardiac weight.

In our examination of experimental dogs we have been unable to detect any pathognomonic physical or other signs which might aid us in a diagnosis of adhesive pericarditis or mediastinal pericarditis. We have not been able to demonstrate any one or more conditions that would invariably indicate pericardial disease. Taking all the examinations together, however, certain signs being present in certain animals and other signs in others, we feel that we can recognize when pericardial disease is present in these experimental animals. We believe that when we have a sufficiently large series and have correlated the various results, we shall be able to point out those signs which are of greatest value in estimating pathologic disturbances of the pericardium.

SUMMARY AND CONCLUSIONS

1. It is generally agreed and is our observation that chronic pericarditis is rarely diagnosed ante mortem.

2. There are no pathognomonic signs of chronic pericarditis found in all cases of this disorder, but there are several signs which are occasionally present and which probably are indicative of chronic pericarditis.

3. Diagnosis of chronic pericarditis depends in part on the history of the patient, to which is added a thorough survey of the physical signs, and the electrocardiographic and roentgenologic examinations.

4. Experimental pericarditis in animals has not as yet yielded information that might point positively to evidence of pericardial disease.

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9. Corvisart, J. N.: An Essay on the Organic Diseases and Lesions of the Heart and Great Vessels, translated by Jacob Gates, Philadelphia, 1812, p. 55.

10. Aran, F. A.: Recherches sur les adhérences générale du péricarde, Arch. gén. de méd. **4**: 466 (April) 1844.

11. Potain, P. C. E.: Adhérence du péricarde, triple bruit du cœur, impulsion diastolique, Bull. Soc. anat. de Paris **31**: 378 (Aug.) 1856.

12. Foster, B.: Clinical Medicine, London, 1874, p. 283.

13. Dieuaide, F. R.: The Electrocardiogram as an Aid in the Diagnosis of Adhesive Pericardial Mediastonitis, Arch. Int. Med. **35**: 362 (March) 1925.

14. Musser, J. H., and Herrmann, G. R.: Sudden Death of Experimental Animals Following Intrapericardial Injections of Tincture of Iodine, Proc. Soc. Exper. Biol. & Med. **32**: 212, 1925.

15. Herrmann, G. R.: Experimental Heart Disease, I, Methods of Dividing Hearts, with Sectional and Proportional Weights and Ratios for 200 Normal Dogs' Hearts, Am. Heart J. **1**: 213 (Dec.) 1925.

THE CLINICAL RECOGNITION OF PULSUS ALTERNANS *

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It is now an accepted fact that, in the absence of tachycardia, pulsus alternans in cardiac or cardiorenal disease indicates a grave prognosis. Lewis [1] says:

> Alternation of the pulse belongs to a small group of phenomena witnessed by those who attend the sick, which, treated as isolated signals, are in themselves emphatic and portentous. It ranks with subsultus tendinum, with optic neuritis, with the risus sardonicus, and other ill omened messengers. It is the faint cry of an anguished and fast failing muscle, which, when it comes, all should strain to hear, for it is not long repeated. A few months, a few years at most, and the end comes.

A perusal of the litearture is apt to convey the impression that pulsus alternans is uncommon and that a tracing of the radial pulse is necessary for its detection. Vaquez [2] refers to it as "at once the rarest and the most serious of the arrhythmias." White [3] was the first to emphasize the fact that alternation of the pulse is relatively common. In taking radial pulse tracings from 300 patients with cardiac or cardiorenal disease in a period of eight months, he found seventy-one instances of alternation and seventy-one of auricular fibrillation, indicating that the conditions are about equally prevalent. Furthermore, alternation was found in 33 per cent of all patients showing any degree of cardiac decompensation from whom a radial pulse tracing was obtained (sixty-six of 201 cases). It is therefore apparent that alternation is frequent in patients with myocardial weakness.

Alternation of the pulse does not produce the striking physical signs that are found in auricular fibrillation, and it is due to this that it is so frequently overlooked. Lewis states that most cases of pulsus alternans cannot be recognized without a tracing of the radial pulse. Price [4] holds a similar view. The late Sir James Mackenzie,[5] who was the first to call attention to the grave prognostic significance of alternation, states that alternation "can frequently be made out when taking the blood pressure." In cases of constant alternation, it has long been known that there is often a difference in systolic pressure between the large and small waves, which can be detected by auscultation over the brachial artery or by palpation of the artery during estimation of the blood pressure.

Another physical sign, which has been described in pulsus alternans, is a difference in the intensity of the heart sounds or in the pitch of a cardiac murmur. All who mention it are agreed that it is an uncommon sign. Mackenzie [6] says:

> As a rule, when pulsus alternans is present, there are no changes in the sounds of the heart, but occasionally I have found, when there was a musical murmur present at the aortic area, that this musical sound varied in intensity with the large and small beats.

Hart [7] observes:

> When murmurs are present (with alternation), they occasionally vary in intensity, but a change in heart sounds normal and pathological is far more characteristic of the extrasystolic irregularities and auricular fibrillation than it is of alternation.

According to Lewis,[1] a difference in the intensity of the heart sounds in alternation is inappreciable, while Norris and Landis [8] state that the sign is rarely demonstrable. In most monographs on the heart, it is not mentioned.

My attention was first called to alternation in the intensity and pitch of the sounds over the heart in examining a colored woman,[9] aged 33, in February, 1924. She had a marked chronic myocarditis with decompensation and a mitral insufficiency. On auscultation, the first sound at the apex was replaced by a harsh, rather high-pitched, blowing murmur, audible throughout the chest. At the apex, where the murmur was loudest, it was noted that *the pitch and intensity of the murmur varied with alternate heart beats*, suggesting the probability of pulsus alternans. Palpation of the radial artery revealed definite alternation in size in an otherwise regular pulse. With the blood pressure cuff on the arm, every second beat came through at a pressure of 180; all pulse waves were audible and palpable at 170. A tracing of the radial artery also showed pulsus alternans. An examination of the available literature then revealed the findings noted above. Encountering a second striking instance of alternation in the intensity and pitch of a heart murmur last summer led to a more careful examination of patients with cardiac disease with reference to this physical sign, and also to phenomena over the brachial artery.

In the last eight months, nineteen cases of constant alternation of the pulse have been observed, nine in the hospital wards and ten in consultation practice. Of these, seven (or 36.8 per cent) have had alternation in the intensity or pitch of the heart sounds or murmurs. In this small group of cases, a difference in the pitch of an apical systolic murmur was noted in four, in one of which there was also heard a difference in the intensity and pitch of alternate first tricuspid sounds. In one case, alternation in the intensity and pitch of the first sound at the apex was present, while the remaining patient had similar changes in the second pulmonic sound. It would appear, then, that alternation in the pitch of cardiac murmurs or alternation in the intensity and pitch of heart sounds may be found in a fairly large percentage of patients showing constant alternation of the pulse. However, the sign has not been found in a sufficiently large proportion of patients to make it a very important sign of pulsus alternans.

In the same group of patients, the sounds over the brachial artery were studied carefully for deviations from the normal. It is usually stated that alternation may be said to exist when only alternate pulse waves produce a sound over the radial artery (and a pulse at the wrist) at the systolic pressure, while all heart beats produce sounds and pulse waves when the pressure is lowered still further. This phenomenon was present in thirteen of the nineteen cases. Furthermore, it was noted that the intensity of alternate sounds over the brachial artery usually varied in intensity all the way

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* Read before the Section on Practice of Medicine at the Seventy Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Lewis, Thomas: Disorders of the Heart Beat, ed. 6, London, 1925, pp. 115 et seq.
2. Vaquez, H.: Diseases of the Heart, American edition, Philadelphia, 1924, pp. 564 et seq.
3. White, P. D.: Alternation of the Pulse: A Common Clinical Condition, Am. J. M. Sc. **150**: 82, 1915.
4. Price, F. W.: Cardiac Irregularities, Especially in Reference to Prognosis and Treatment, Brit. M. J. **2**: 703 (Oct. 18) 1924.
5. Mackenzie, James: Diseases of the Heart, ed. 4, London, 1925.
6. Mackenzie, James: Principles in Diagnosis and Treatment in Heart Affections, London, 1916, p. 154.
7. Hart, T. S.: The Diagnosis and Treatment of Abnormalities of Myocardial Function, New York, 1917, p. 188.
8. Norris, G. W., and Landis, H. R. M.: Diseases of the Chest, ed. 3, Philadelphia, 1924, p. 190.
9. Morris, R. S.: An Unusual Sign Associated with Pulsus Alternans, Cincinnati J. Med., June, 1924.

to the diastolic pressure. In three patients, all pulse waves had the same systolic pressure, but the diastolic pressure of alternate beats varied. The limits of variation in systolic pressure were from 3 to 20 mm. of mercury, while the variations in diastolic pressure were 6 and 10 mm. in two cases, and not recorded in the third. All three patients with alternation in diastolic pressure had high pulse pressures; viz., 120, 74 and 90.

The variation in the intensity of the sounds over the brachial artery was so striking in all the patients in whom alternation was shown either by blood pressure variation of alternate beats or by tracings of the radial pulse that this phenomenon was carefully sought in other patients. We have observed it in those who later developed typical pulsus alternans, and while we have no further proof of its relation to alteration,[10] we believe, from a study of the few cases thus far observed, that it will be found to be a valuable early clinical sign of pulsus alternans, and will thus be of aid in prognosis. We have not observed alternation in intensity of the sounds over the brachial artery in taking the blood pressure of patients with normal hearts. To detect the sign, the pressure should be lowered slowly while auscultating over the artery, attention being focused on the pitch and intensity of the sounds. At times, alternation will be audible for only part of the pressure range. Thus, in a patient who later developed constant alternation, with a blood pressure of 120 systolic and 74 diastolic, there was noted alternation in the intensity of the sounds between 120 and 100. Six days later, only alternate heart beats caused a sound at a pressure of 116, while all were audible at 110.

In our experience, auscultation has given more valuable information than palpation over the brachial artery, though with high pulse pressures palpation may give striking findings.

It has perhaps been noted that the observations recorded above are concerned only with patients in whom there was constant alternation. In White and Lunt's series of 129 cases of alternation, thirty-seven (or 29 per cent) showed constant alternation, and the remaining ninety-two patients showed alternation only after premature contractions. It is therefore evident that many cases of alternation have not been disclosed by the methods of examination we employed. Constant alternation has a graver prognostic significance than that which follows an extrasystole. Eight of our nineteen patients have died within nine months, and five more are known to be in a critical condition. A number of cases of alternation following premature contraction have been detected by means of auscultation of the heart and of the brachial artery, and we hope to report further on this subject in the future.

That auscultatory methods are subject to error is well known. The blood pressure findings which we look on as characteristic of pulsus alternans may be found in patients in whom the respiratory rate is one-half the pulse rate (easily determined) and also in those with bigeminal rhythm in whom the premature contractions are late and can be recognized only by graphic methods. But prognosis should never rest on one sign alone. Pulsus alternans in a slowly beating heart is very rare in the absence of other signs of weakening of the myocardium, such as breathlessness or precordial pain.

10. There are no constant, characteristic changes in the electrocardiographic record in patients with pulsus alternans, and White and Lunt (The Detection of Pulsus Alternans, J. A. M. A. **66**: 1383 [April 29] 1916) have shown that differences in pressure of less than 6 mm. of mercury are not evident in the radial pulse tracing.

CONCLUSION

It is believed that more careful attention to detail in auscultation over the heart and over the brachial artery during blood pressure determination in patients with cardiac or cardiorenal disease will reveal many cases of pulsus alternans, and that prognosis will thereby become more accurate.

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SUBACUTE BACTERIAL ENDOCARDITIS

A CLINICAL STUDY OF THIRTY CASES *

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There appears to be a renewal of interest in the subject of subacute bacterial endocarditis in recent years, probably because of the increase in the disease following the World War and the several severe pandemics of influenza of the last decade. A disease with an almost invariable fatal termination naturally provokes a further stimulus to renewed investigation regarding its treatment.

In presenting a clinical study of thirty cases of this disease observed during the last five years, and comparing it with the publications of other writers on the subject, it is quite evident that there is a general acceptance of the term subacute bacterial endocarditis as expressive of a disease entity comprising a definite group of clinical and pathologic findings.

The term was first used by Libman [1] in 1910, but earlier writers differentiated this particular type of endocarditis although not using the same designation.

The first comprehensive treatise on chronic endocarditis was that given by Osler in his Goulsonian lectures in 1885. In a contribution in 1908 he [2] gave a classic description of ten cases corresponding to the present conception of subacute bacterial endocarditis, which he had seen in the preceding twenty years, and remarked that he had not noted cases of this particular type at the time of his Goulstonian lectures.

In 1909, Horder [3] published an extensive review of microbic infective endocarditis, with an analysis of 150 cases observed during the preceding eight years, and in this collection were eighteen examples of the description regarded as typical of the subacute form.

The term endocarditis lenta has been used mostly by German and French writers. Schottmueller [4] reported five cases in 1910 under that heading. In more recent years a number of French clinicians have added further contributions, notably Roger,[5] Vaques,[6] Debré,[7] and Fiessinger and Janet,[8] usually under the title "endocarditis lenta."

In American literature the names of Billings,[9] Rosenow,[10] Kinsella,[11] and Libman [12] are most familiar

* Read before the Section on Practice of Medicine at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Libman and Celler: Am. J. M. Sc. **140**: 516, 1910.
2. Osler: Quart. J. Med. **2**: 219, 1908-1909.
3. Horder, T. J.: Quart. J. Med. **2**: 289, 1908-1909.
4. Schottmueller, H.: München. med. Wchnschr. **62**: 617, 1909.
5. Roger, H.: Paris méd. **13**: 468, 1918
6. Vaques, H.: Bull. et mém. Soc. méd. de hôp. de Paris **3**: 1212, 1917.
7. Debré, R.: Revue de méd. **36**: 199 (March-April), 438, 508, 1919.
8. Fiessinger and Janet: Bull. et mém. Soc. méd. d. hôp. de Paris, 1918, p. 159.
9. Billings, Frank: Chronic Infectious Endocarditis, Arch. Int. Med. **4**: 409 (Nov.) 1909.
10. Rosenow: J. Infect. Dis. **6**: 245, 1909.
11. Kinsella, R. A.: Streptococcus Endocarditis, Arch. Int. Med. **19**: 367 (March) 1917.
12. Libman: Am. J. M. Sc. **163**: 313, 1912.

in connection with this subject, and of these Libman has probably made as extensive contributions as are recorded anywhere.

The careful pathologic studies of Clawson [13] and a recent comprehensive review of the entire subject by Blumer [14] have stimulated further interest in this form of endocarditis.

All writers are in agreement that differentiation should be made from the following three types:

1. Endocarditis that accompanies acute or subacute rheumatism. (Whatever the causative micro-organism of acute rheumatism may prove to be, it is generally agreed that the vegetations of rheumatic endocarditis and the blood stream are bacteria free, which is quite different from the disease under discussion.)

2. Endocarditis often termed "acute ulcerative or acute malignant," which is but one part of an acute pyemia, the heart affection being secondary to, rather than responsible for, the systemic septicemia. The clinical course is quite different, the duration of the disease varying from a few days (fulminating type) to a few weeks, and the infective micro-organisms are much more virulent.

3. That form of endocarditis occurring as a terminal event in chronic disease, which is more often latent and recognized only at necropsy.

In classifying bacterial endocarditis, the term acute should be applied to those cases in which the clinical course does not extend beyond six or eight weeks; subacute, to those in which the course is protracted beyond three months or longer.

The subject premits of discussion under the four headings: (1) etiologic significance of a preexisting valve lesion; (2) types of infection and infective foci; (3) characteristic clinical picture, and (4) prognosis and treatment.

ETIOLOGIC SIGNIFICANCE OF A PREEXISTING VALVE LESION

That a preexisting valve lesion is essential for the production of this form of endocarditis is evident from the history of all recorded cases. The chronically injured valve seems to constitute a predisposing site on which the new infection is engrafted. In many instances the patients are not aware of a previous heart affection. As this is almost exclusively a disease of adult life, it is the valves of the left side of the heart that are chiefly involved. In our series of thirty cases, the mitral valve was involved in twenty-two, the aortic in seven, and in one case the lesion was of congenital nature. In the recorded cases the aortic valve is more frequently the site of previous infection than the mitral. A tricuspid and a pulmonary valve infection have been noted in a few instances. In a limited number of cases, as in one of ours, the primary valvular or cardiac defect has been of congenital origin. The previous disease producing the original valvular affection has in more than one half of the recorded cases been an acute or subacute rheumatic infection. Twenty of the patients in our series gave a previous history of acute rheumatism. Syphilis and scarlet fever and other infections are less frequent, while arteriosclerosis is rare as a basic lesion. Since the World War, trench fever, gonorrhea and influenza have assumed greater importance in causative influence. Seven of our patients were ex-soldiers.

The disease seems to be incident to the period of adolesence and young adult life, occurring during the time of greatest incidence of valvular heart disease from all causes, excluding syphilis and arteriosclerosis. In our thirty cases there were sixteen males and fourteen females, which corresponds to the statictics published by Osler and Blumer, giving the proportions as males, 60 per cent and females, 40 per cent.

Between the production of the original valve lesion and the later reinfection there is often an interval of several or many years of good health. To what extent the rheumatic history or the preexisting valve lesion itself produces a predisposition to subsequent infection or subacute bacterial endocarditis is a problem still unsolved.

In this connection, attention should be directed to the interesting study of Lewis and Grant [15] on the influence of congenitally bicuspid aortic valves (regarded by them as malformation) on subsequent subacute bacterial endocarditis. In a series of thirty-one cases of this form of endocarditis, they found at necropsy in eight cases a congenitally bicuspid condition of the aortic valve. They conclude that this malformation has a determining cause in rendering these valves more susceptible to subsequent infection of mildly virulent bacteria.

TYPES OF INFECTION AND INFECTIVE FOCI

The types of infection noted in a great majority of the cases recorded are concerned mainly with two micro-organisms, the one belonging to the streptococcus group, and the other the influenza bacillus. Libman and others have reported that the micro-organism isolated from the blood stream in from 90 to 95 per cent of the cases is a nonhemolytic streptococcus often referred to as *Streptococcus viridans*, while *Bacillus influenzae* and occasionally other organisms are found in the remaining 5 or 10 per cent.

Miller and Branch [16] have reported a typical case of subacute bacterial endocarditis in which the infective agent was a hemolytic hemophilic bacillus. This organism is closely related to the influenza bacilli, differing from them in their ability to hemolyze red cells.

The causative micro-organism in all instances has the common characteristic of low virulence with no tendency, even in its embolic manifestations, to pyogenic effects. That a micro-organism of low virulence can produce such a severe systemic disturbance is one of the problems peculiar to this disease.

Frequent observers have noted that the blood stream is often bacteria free for long periods, which fact has sometimes occasioned confusion in diagnosis. Gow [17] expresses it in the opinion that a positive culture finding is of great diagnostic importance while a negative result is conversely of little import.

CHARACTERISTIC CLINICAL PICTURE

Although the clinical course often extends over a period of one to two years with remissions and considerable variation of symptoms, nevertheless there is a definite adherence to a distinctive clinical picture. The onset as a rule is insidious in nature, which makes it difficult often to determine just when the disease begins, this being equally true of the hospital patient, who usually does not come under observation until late in the disease, as well as the private patient who is in close contact with his physician. This initial or onset period probably represents a shorter or longer

13. Clawson, B. J.: Endocarditis, Arch. Int. Med. **33**: 157 (Feb.) 1924.
14. Blumer, G.: Medicine **2**: 105 (May) 1923.
15. Lewis, T., and Grant, R. T.: Heart **10**: 21 (April) 1923.
16. Miller, C. P., and Branch, A.: Subacute Bacterial Endocarditis Due to Hemolytic Hemophilic Bacillus, Arch. Int. Med. **32**: 911 (Dec.) 1923.
17. Gow, A. E.: Brit. Med. Jour. **2**: 307, 1920.

state of bacteremia, and is a part of the accompanying general toxic condition. This onset period is characterized by a feeling of lassitude, vague pains, loss of appetite, chilliness, vertigo, headache, cough, and less often symptoms indicating a heart affection.

While the prominent feature in all the cases is the protracted fever, yet, because of the insidious onset, it is not improbable that patients go about during this early stage attending to their regular duties and do not realize that they have fever or are otherwise particularly sick.

It is during the early stage that the thought of tuberculosis, subacute rhemuatism, mild sepsis, malaria or typhoid infection is often considered.

The main clinical symptoms may be associated with two periods or stages of the disease: (1) an early period in which the signs and symptoms are those of a low grade infection, and (2) a later period when the manifestations of embolism hold the prominent place.

The early period, being expressive of a low grade infection, explains the symptoms of fever, anemia, exhaustion and enlarged spleen. The symptoms of the later period are due to the endocarditic changes, and the breaking off of particles from the affected valves and mural endocardium, producing such symptoms as petechiae, tender cutaneous nodes, clubbing of the fingers, vascular embolism, purpura and renal phenomena, while definite cardiac symptoms are singularly rare.

Fever is a constant phenomenon of this disease, but rather distinctly variable in its course. At times it is irregularly intermittent, again intermittent, and in some instances there is little or no fever. It often appears in waves, remaining at from 103 to 104 F. for weeks at a time, and then toward the end of the illness it may be absent entirely for several weeks. Chills and sweating are frequently noted during the early period of the disease, but they are encountered also during the later stages.

The fever is modified by other symptoms or complications occurring during the course of the illness; viz., a distinct rise occurs with the appearance of the clinical signs of renal disease; the development of embolic phe-

Subacute Bacterial Endocarditis

No.	Onset	Age and Sex*	Previous Infection	Valve Affected	Reinfection	Blood Culture	Duration of Illness (Fever Course)	Enlarged Spleen	Osler's Nodes	Petechiae	Embolism	Acute Glomerular Nephritis	Termination
1	July, 1921	29, ♂	Rheumatism, 1911	Mitral; aortic	Influenza	Positive, 3 plus; Streptococcus viridans	22 weeks	Plus	Plus	Plus	Plus cerebral	Plus	Cardiac death, Dec., 1921
2	Aug., 1921	62, ♂	Rheumatism	Mitral	Cholecystitis	Positive, 2 plus; Streptococcus viridans	14 weeks	Plus	—	Plus	—	Plus	Death, Dec., 1921
3	April, 1921	34, ♀	Rheumatism, 1905	Mitral	Salpingitis	Positive, 2 plus; Streptococcus viridans	20 weeks	Plus	Plus	Plus	—	Plus	Sept., 1921
4	June, 1921	56, ♀	Rheumatism, 1892	Mitral	Influenza	Negative	14 weeks	Plus	Plus	Plus	—	Plus	Sept., 1921
5	May, 1921	60, ♀	Rheumatism, 1881	Mitral	Influenza	Positive	22 weeks	Plus	Plue	Plus	—	Plus	Cardiac, Oct., 1921
6	Aug., 1921	23, ♀	Congenital	Patent ductus arteriosus	Influenza	Positive, 2 plus; streptococcus	24 weeks	Plus	Plus	Plus	—	Slight	Discharged, March, 1922; fever free; bacteria free
7	Dec., 1921	43, ♂	Rheumatism, 1901	Mitral	Influenza	Positive, 3 plus; streptococcus	16 weeks	Plus	Plus	Plus	Cerebral	Plus	Death, March, 1922
8	Nov., 1921	53, ♂	Rheumatism, 1894	Mitral	Enteritis	Positive, 1 plus; streptococcus	18 weeks	Plus	Plus	Plus	—	Plus	Death, March, 1922
9	Nov., 1921	37, ♀	Scarlet fever, 1891	Mitral	Influenza	Positive, 2 plus; streptococcus	32 weeks	Plus	Plus	Plus	—	Plus	Death, July, 1922
10	Dec., 1921	17, ♀	Rheumatism, 1915	Mitral	Influenza	.....	35 weeks	Plus	Plus	Plus	—	Plus	Aug., 1922
11	Jan., 1922	63, ♂	Rheumatism, 1880	Mitral	Pyelitis	Positive, 1 plus	14 weeks	Plus	—	Plus	Cerebral	Plus	Sept., 1922
12	April, 1922	18, ♂	Influenza, 1921	Mitral	Influenza	Positive; streptococcus	25 weeks	Plus	Plus	—	—	Plus	Sept., 1922
13	March, 1923	15, ♀	Rheumatism, 1921	Aortic	Enteritis	Positive, 2 plus	60 weeks	Plus	Plus	Plus	—	Plus	Oct., 1922
14	Nov., 1922	51, ♂	Rheumatism, 1912	Mitral	Influenza	Positive, 1 plus	40 weeks	Plus	Plus	Plus	—	Plus	Aug., 1924
15	Feb., 1923	27, ♂	Rheumatism, 1918	Aortic	Influenza	Positive, 2 plus	58 weeks	Plus	Plus	Plus	Cerebral nasal	Plus	April, 1924
16	Aug., 1923	27, ♀	Rheumatism, 1908	Mitral	Influenza	Positive, 2 plus	18 weeks	Plus	—	Plus	—	Plus	Dec., 1923
17	Aug., 1923	41, ♀	Rheumatism, 1902	Mitral	Actue respiratory infection	Positive, 1 plus	17 weeks	Plus	Plus	Plus	—	Plus	Aug., 1924
18	Dec., 1923	25, ♂	Rheumatism, 1906	Mitral	Influenza	Positive, 1 plus	20 weeks	Plus	Plus	Plus	—	Plus	April, 1924
19	May, 1924	27, ♂	Rheumatism, 1918	Mitral	Influenza	Positive, 1 plus	14 weeks	Plus	Plus	—	—	Plus	Aug., 1924
20	April, 1924	44, ♂	Scarlet fever, 1896	Mitral	Influenza	Positive, 1 plus	32 weeks	Plus	Plus	Plus	—	Plus	Jan., 1925
21	Jan., 1924	41, ♂	Measles, 1903	Mitral	Influenza	Positive, 1 plus?	40 weeks	Plus	Plus	Plus	Cerebral	Plus	Nov., 1923
22	Feb., 1925	26, ♂	Influenza, 1918	Aortic	Influenza	Positive ?	22 weeks	Plus	Plus	Plus	—	Plus	Alive
23	March, 1925	11, ♀	Chorea, 1921	Mitral	Acute arthritis; rheumatism	Negative	50 weeks	Plus	Plus	Plus	—	Plus	Alive
24	April, 1925	26, ♀	Rheumatism, 1909	Mitral	Influenza	Positive, 2 plus	25 weeks	Plus	—	Plus	—	Plus	Death, Oct., 1925
25	Feb., 1925	37, ♂	Scarlet fever, 1918	Aortic	Influenza	Positive, 1 plus	30 weeks	Plus	Plus	Plus	—	Plus	Death, Oct., 1925
26	Aug., 1925	34, ♂	Rheumatism, 1918	Mitral	Influenza	Positive, 1 plus	26 weeks	Plus	Plus	Plus	—	Plus	Death, Jan., 1926
27	Aug., 1925	62, ♂	Rheumatism, 1913	Aortic	Influenza	Positive, 1 plus	30 weeks	Plus	Plus	Plus	Cerebral	Plus	Alive
28	Nov., 1925	30, ♀	Rheumatism, 1909	Aortic	Influenza	Positive, 1 plus	22 weeks	Plus	Plus	—	—	Plus	Alive
29	Oct., 1925	22, ♀	Influenza, 1918	Mitral	Cholecystitis	Positive, 1 plus	22 weeks	Plus	Plus	Plus	—	Plus	Alive
30	Nov., 1925	12, ♀	Tonsillitis, 1918	Mitral	Tonsillitis	Positive, plus	24 weeks	Plus	Plus	—	—	Plus	Alive

* In this column, ♂ indicates male; ♀, female.

nomena and splenic infarction produce a similar sharp rise of temperature, with a chill occasionally preceding it.

Different forms of therapy influence the fever course, such as the intravenous injection of physiologic sodium chloride solution, of drugs such as sodium cacodylate, and blood transfusions; these may all produce a sudden rise of fever; again, they may be followed by a drop in temperature to the normal for a short period, arousing a false hope as to the efficacy of the therapeutic remedy.

Splenic enlargement is a common symptom, occurring in all our cases; the palpable spleen is regarded as an early distinctive sign of this septicemic condition.

Anemia and blood changes are a constant feature, but vary greatly in nature. The anemia is usually of the secondary anemia type; and while the reduction in hemoglobin and erythrocytes is often very marked, the true blood picture of pernicious anemia rarely develops. The leukocytes may be normal in numbers, and again increased or below the normal. Where leukopenia occurs the lymphocytes are proportionately increased, while in the cases with leukocytosis the polymorphonuclears usually predominate.

The general pallor and particularly the pallor of the face is a striking feature, to which is added a tired look and later a pigmentation, giving to the face a brownish tinge, usually referred to as "café au lait."

Cutaneous changes are particularly characteristic of the embolic phenomena, and are easily of greatest diagnostic importance. These appear usually as changes in color, the appearance of petechiae, erythematous rashes, purpura and painful cutaneous nodules. The café au lait color of the face has been referred to. Purpura and erythematous eruptions, frequently seen in severe types of septicemia, are comparatively rare in this disease. Petechiae are a more important symptom, noted in twenty-six of our series, and found present in 80 per cent of all recorded cases. They are usually discretely distributed and become more extensive only during the terminal stage of the illness. These petechiae are usually of short duration, and as they fade leave a yellowish brown stain.

By far the most interesting of the skin phenomena are the tender or painful nodes first described by Osler, and often referred to as Osler's nodes, being seen in 50 per cent of recorded cases. Twenty-five of our thirty cases presented this symptom. According to Osler's first description, these nodes appear at intervals, more frequently on the tips of the fingers, also on the pads of the fingers and toes, consisting of slightly swollen areas, varying in size from that of petechiae to 1.5 cm. in diameter, of vivid pink hue with slightly opaque centers. They are distinctly painful, particularly to the touch. They are not hemorrhagic, and the area is not pigmented after they disappear. The best explanation offered is that they are caused by the lodgment of minute emboli near the skin.

The French writers refer to this phenomenon as the "signe des doigts."

It is a common remark of the patient at the morning visit, "Doctor, there is a new tender red spot on my finger or toe (as the case may be) this morning."

These principal cutaneous phenomena are to be distinguished from the lesions on the palms of the hands, inner sides of the wrists and toes of the feet, found in the more acute forms of endocarditis.

Clubbing of the fingers is another interesting symptom, and is probably frequently misinterpreted because of its relation to chronic valvular disease and congenital heart affections. The finger tips differ from those seen in congenital heart disease, in being pale and showing no venous stasis.

Vascular embolism, aside from the embolic phenomena associated with certain skin lesions, constitutes another of the principal clinical features of this disease. It occurs either as pure embolism or embolic aneurysms, and affects the cerebral, nasal, mesenteric and pulmonary arteries, and those of the extremities. Aphasia, partial or complete hemiplegia, peripheral arterial obstruction of the extremities, mesenteric embolism with severe intestinal bleeding, and perforated nasal septum were some of the results of vascular embolism noted in our cases. The splenic infarctions so frequently seen in this disease, as well as the terminal glomerular nephritis, are further expressions of embolism.

While pain is a frequent accompaniment of the various embolic phenomena peculiar to subacute bacterial endocarditis, there are a number of other painful symptoms that seem to feature this disease. Libman, in 1910, first noted a tenderness over the lower end of the sternum. This is often manifest before anemia is established, so that it is not necessarily a feature of the anemia. Pain may be felt in other bones, as the sacrum and ischium. These pains are often indefinite, and only occasionally are localized in any particular bone or joint. Vague arthritic pains are common to the early period of the disease, and an arthralgic type has been considered by some writers. Headache is a frequent symptom, and this with the other painful symptoms may be regarded as expressions of the general septicemia, rather than of a localized infection.

Embolic glomerular nephritis was first described by Löhlein,[18] as common to subacute bacterial endocarditis, in 1910. The later extensive studies of Gaskell[19] and Baehr[20] have emphasized its occurrence as a characteristic of this disease, and as such usually a part of the later period of the illness. The focal embolic glomerular lesions are accompanied by no clinical evidences of renal disturbance beyond a microscopic hematuria and slight or transient albuminuria. An albuminuria is occasionally noted during the early fever period; then later with the daily examinations, red and white blood cells appear in the sediment, and later as the albuminuria becomes more marked, hyaline and granular casts are usually present. These urine findings are as a rule indicative of a later period of the disease, and generally of unfavorable prognostic significance.

Cardiac symptoms, except for their fundamental significance, are among the least prominent of all. The presence of an existing valve lesion is helpful in determining the diagnosis of the disease under discussion, but it is very unusual for any new endocardial murmurs to develop in the course of the disease, yet the murmurs may become louder and vary otherwise during the illness. Tachycardia may develop with the increase of fever and general septicemia. Arrhythmia and other pulse changes are rare. Special electrocardiographic changes have not been noted. Pericarditis is rare, and signs of myocardial insufficiency are not manifest usually until the later stages of the illness.

As these various symptoms develop to complete the clinical picture, covering often a period of weeks and months, the patients for a long time do not appear seriously ill, and it becomes a hard matter to keep them confined to bed, because they can see no good reason for it.

18. Löhlein: Med. Klin. **6**: 375, 1910.
19. Gaskell: J. Path. & Bact. **16**: 287, 1911-1912.
20. Baehr, George: Significance of Embolic Glomerular Lesions of Subacute Streptococcus Endocarditis, Arch. Int. Med. **17**: 262-264 (Feb.) 1921.

The patient usually succumbs as a result of the progressive anemia and exhaustion incident to the continued septicemia, plus the development of such complications as embolism, particularly intercerebral, with cardiac failure and disturbed renal function, so that pulmonary and visceral congestion, with uremia and coma, frequently closes the scene.

The pathologic anatomic changes noted at necropsy are a further criterion that we are dealing with a characteristic disease process different from other forms of endocarditis. All writers agree that, aside from the changes incident to the preexisting valve lesion, there is a tendency in aortic lesions for the process to extend downward and involve the wall of the left ventricle, and in mitral affections a similar extension on to the wall of the auricle with involvement of the chordae tendineae. The changes indicating mural endocarditis are often more marked than those on the valve surfaces.

PROGNOSIS AND TREATMENT

The importance of the prognostic point of view in this condition is to be strongly emphasized. Almost all these cases appear mildly innocent at the onset, and there is a strong temptation to regard them lightly and promise a speedy recovery, yet death is the usual termination. One can hardly conceive a more trying moment for the attending physician or consultant than to be asked for an opinion regarding the outcome for a patient presenting the clinical picture of this disease, who at the time may not appear seriously ill. It becomes even more tragic when one realizes one's inability to propose any curative measure of treatment.

There are a comparatively small number of recoveries reported. In a series of nearly 300 cases reported by Libman, there are four recoveries. Sir Thomas J. Horder reports the same number in his series. Billings has seen two or three apparently get well. In our group there is one patient who has been fever and bacteria free for three years, so that a recovery may be considered. There is another one who has been free from fever and other clinical symptoms for a period of six months, which permits a hope of ultimate recovery.

This is a disease that is liable to distinct remissions of improvement. The fact that the blood stream is often bacteria free for long periods is suggestive of a remission stage, although cases have been reported in which the patient succumbed to exhaustion and embolic complications after the fever had subsided and the blood was bacteria free.

Another feature to be considered in venturing a prognostic opinion is that well marked healing changes have been observed post mortem in the affected valves and the mural endocardium. This was first reported by Libman and fully corroborated by other observers, affording definite evidence that a healing of the affected area does occur. In one of our cases the necropsy revealed a distinctly healed area on the mural endocardium which could be related to a ten weeks' course of fever experienced three years prior to the last illness. The remissions of improvement and occasional recoveries are best explained by the aforementioned tendency to healing in the affected endocardial areas.

Since this is distinctly an infective process, and in many instances due to a particular micro-organism, it is natural that some form of immunotherapy has been given a prominent place in the different forms of treatment proposed. Unfortunately, the different forms of vaccine treatment have not given any appreciable results. It has been proposed that the transfusion donor be primarily immunized with a causative streptococcus before the blood transfusion is made, but no extensive results have as yet been reported regarding any such methods.

Chemotherapy includes the use of a large number of drugs, principally the colloidal metals, collargol, arsenic derivaties, quinine and salicylates, with the recent additions of neutral acriflavine, mercurochrome-220 soluble and gentian violet.

Intravenous injections of large doses of sodium cacodylate is the form of therapy that has been used principally in the group of cases comprising our series, including the two instances of apparent recovery.

The two reasons generally given for the use of arsenic in this form of septicemia are: (1) It is known that arsenic is retained for a long period in the serum and other body fluids; and (2) laboratory demonstrations indicate that the growth of low virulent streptococci are rapidly inhibited by weak arsenical solutions.

The results with this remedy reported by Capps are interesting. In a series of eight cases there are four recoveries, one patient being well after eleven years, two after five and a half years, and one two and a half years after completing the treatment.

Transfusions of blood have been employed in our series, principally in the cases with a low percentage of hemoglobin. An improvement in the blood state was noted, and in a few instances a disappearance of bacteria from the blood stream for a short period.

A successful or specific form of therapy is still to be developed. Since the most frequent causative infective agent is a nonhemolytic strain of streptococcus, it does not seem improbable that a specific antibacterial or antitoxic serum may be produced. Possibly the production of a special bacteriophage may finally solve the problem.

In the meantime, in view of the great mortality of the disease, preventive measures for which Sir Thomas Horder made such a strong plea in his paper in 1909 should receive prominent consideration. If it were possible to prevent acute rheumatism, most of these cases would not occur in the first place.

The tendency to attack children and young adults, and particularly individuals with valvular heart disease, again emphasizes the great rôle of prophylactic measures. This clearly indicates that all such persons should be rid of every ascertainable focal infection. Furthermore, the need of keeping vitality at its best, developing immunity in every possible way, and the prevention of acute infections should always be borne in mind.

Careful attention to these facts in hospital and dispensary services, in special cardiac clinics, and in private practice will do much to bring this disease under better control.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KILGORE; MUSSER AND HERMANN; MORRIS, AND BIERRING

DR. WILLARD J. STONE, Pasadena, Calif.: In our cases of cardiac pain, covering a period of twenty years, the patient's average age has exceeded 50 years. A number of terms have appeared in the literature, such as vasomotor angina, stenocardia, status anginosus anginal crises, pseudo-angina, angina minor and angina major, which have confused clinicians. The cases largely fall into three types. First, the type producing aortic or effort pain, or the angina of Allbutt. This type differs clinically from the coronary angina of Heberden, and

from the type of pain produced by coronary occlusion. The aortic type of pain is brought on by exertion. It is located beneath the upper sternum. It differs from the angina of Heberden in that it is relieved, as a rule, by cessation of effort. It results from degenerative changes in the aorta affecting elasticity. Radiation to the neck or shoulder occurs in fully as large a percentage of cases as in the coronary type. The important thing about the aortic type of angina is that the outlook is distinctly more favorable. In the coronary type, the onset is sudden but of very short duration. It is accompanied by apprehension such as is seen in few other cardiac conditions. It is accompanied by a viselike constriction of the chest, and, as rule, can be differentiated from the aortic type in that it is not dependent on effort. Radiation of pain frequently occurs in the coronary type and is referred to the shoulder and down the inner side of the arm. But the pain, instead of being located by most patients as beneath the upper portion of the sternum, is frequently located in the epigastrium. In my experience, the coronary type of angina precedes in many instances the coronary occlusion that follows. I did not hear Dr. Musser refer to the sign of Wenckebach, sometimes called Keith's sign, in the diagnosis of chronic adhesive pericarditis. Under normal conditions of inspiratory effort, the anteroposterior diameter of the chest moves more than the lateral. With adhesion to the chest wall, the lateral expansion of the chest under deep inspiration may be greater than the anteroposterior expansion. Likewise, under normal conditions of deep inspiratory effort, protrusion of the epigastrium occurs. With adhesions to the chest wall, retraction of the epigastrium rather than protrusion may occur. In 1919, I reported a series of 300 necropsies on patients who died of pneumonia, in which occurred seventy-two instances of pericarditis. They were, in many instances at least, partly responsible for death.

DR. JOSEPH L. MILLER, Chicago: Precordial pain is a subject on which there is considerable confusion, especially in classification. Until about fifteen years ago we had two types of endocarditis—rheumatic and septic, or malignant. Then appeared the classification of rheumatic, subacute bacterial and septic endocarditis. The subacute bacterial endocarditis apparently includes a variety of cases in which there may be a great difference in the symptomatology and prognosis. The present tendency to consider all cases of subacute bacterial endocarditis as having a bad prognosis is not correct. We have mild cases of subacute bacterial endocarditis, not rheumatic in origin, in which *Streptococcus viridans* is found. Most of these cases arise on old lesions. The course of the disease may be rather mild. Chills may be entirely absent. Petechiae or embolic phenomena, such as hemiplegia, or blood in the urine, appear occasionally. To secure positive blood cultures requires a good deal of skill, and yet *Streptococcus viridans* is present. At present this group is classed with the subacute bacterial endocarditis cases. They are, however, much less virulent in character than the ordinary subacute bacterial endocarditis, and many of these patients recover without any special treatment. Where these symptoms approach those of a septic endocarditis, chills, fever, etc., the prognosis is very bad, but there is a form of subacute bacterial endocarditis with positive cultures in which the prognosis is not necessarily bad.

DR. JAMES MCLESTER, Birmingham, Ala.: Through painstaking clinical observation, a thing that is becoming unfortunately rare, Dr. Morris has called attention to a sign, the existence of which many of the older writers have denied; that is, a change in the tone or pitch of the heart murmur occurring in alternation. Logically, this is what we should expect, because there is at the same time a change in the force of the systole that produces this murmur. Alternation presents a very interesting problem. Every alternate wave is small, but the pulse time is the same. This evidently signifies that there is a defect in the force of the ventricular systole, and from the septic endocarditis. Cases in this intermediate group do not begin with rheumatism, nor do they show petechiae or violent chills. It is not strikingly septic endocarditis. There has been a great deal of confusion lately in reporting large numbers of cases of subacute bacterial endocarditis. It depends on what one keeps in the group and how much one pushes over into the group of septic endocarditis. If one retains in the group what I think should be called subacute endocarditis only those cases belonging there and puts over into the septic endocarditis group those cases that show septic symptoms, then I think one will have a large number of recoveries. I have not seen many cases in the last years, but after the war we had eight cases in two years which we placed in this group, all with *Streptococcus viridans*. We did not call any of these cases septic endocarditis. They were not acute rheumatic endocarditis. Four of the eight patients recovered. In Toronto, fourteen patients were reported as recovered. I cannot help but think that Dr. Bierring has put into that class of endocarditis a lot of cases that properly are septic endocarditis, because I cannot understand how he gets such a high mortality. The only point in which I differ with Dr. Bierring is that what we call septic endocarditis he calls subacute endocarditis.

DR. LEWELLYS F. BARKER, Baltimore: Of more than fifty patients with viridans endocarditis with positive blood cultures that I have seen, every one is dead. The only patient that I have ever seen recover after a positive culture of *Streptococcus viridans* had been obtained from the blood was a patient who had a radical antrum operation; immediately after the operation he had fever and the positive blood culture was obtained, but no signs of endocarditis developed. In a view days, he was quite well again and *Streptococcus viridans* had disappeared from the blood. It would seem certain, however, that some patients with true viridans endocarditis do recover. Dr. Libman's experience has proved this, but a fortunate outcome must be very rare. Dr. Miller has referred to another group of cases in which he saw four recoveries out of eight. I understand that there have been reports from Canadian observers and English observers of similar experience; the patients were younger persons with endocarditis, and *Streptococcus viridans* was grown from the blood. My belief is that there must be two groups of cases —a "severe" group and a "mild" group. Possibly the mild, favorable cases are limited in their geographic distribution; or possibly there are strains of varying virulence. It is rather strange that Dr. Bierring in his experience and we in our experience in Baltimore have not encountered the "mild" group. I believe that the "mild" group exists, for the men who have reported the cases are reliable workers. But the strange discrepancy remains to be explained.

DR. MEYER RABINOWITZ, Brooklyn: In regard to the pain in the angina pectoris, a great deal will depend on the sensitiveness of the person to respond to pain stimuli. Hyposensitive patients may die without any manifestation of pain, and at necropsy reveal the lesions that go with the disease. Patients with *Streptococcus viridans* infection who have recovered have not had any embolic manifestations. It is important in the differential diagnosis between acute rheumatic and subacute bacterial endocarditis to investigate the urine for red blood cells. The frequent finding of red blood cells in the urine speaks for subacute bacterial endocarditis. Another point brought out by Dr. Libman may be the inability to flex the patient's head on the chest, because of meningism occurring in subacute bacterial endocarditis. This does not occur in acute rheumatic manifestations, except with acute rheumatic cervical spondylitis.

DR. W. L. BIERRING, Des Moines, Iowa: If we recognize that there is a typical clinical history characteristic of this form of endocarditis, there should be no difficulty about the classification. There may be some variance as to the use of the term "subacute," since these cases often have a prolonged course, so that the term "chronic" may seem more appropriate. If we adhere to the definite clinical picture, with its embolic phenomena, the usual occurrence in the blood stream of a nonhemolytic strain of streptococcus or other micro-organism of similar low virulence, and the history of a preexisting valve lesion, we are justified in recognizing this as a special disease entity. Of the thirty patients in this series, twenty-seven had a positive culture at one time or another during the course of

the illness. A large number of them were under personal observation during the major part of the illness. There is one patient living, aged 11 years, who has been twelve months in the hospital with a continued fever during all of that time, and is now succumbing to heart failure. The records of reported cases indicate only a limited number of recoveries. Dr. Libman, in 300 cases, has seen only four recoveries. In a series of 189 cases reported by Sir Thomas Horder in 1922, there were four recoveries. Among our series we have one patient who has been bacteria-free and fever-free during the last three years. Another has been fever-free for six months. There are five patients in the series still living who have been ill for periods varying from twenty-two to fifty weeks, yet it does not seem likely that any of them will recover. The first patient in the series was a young man, seen during the primary rheumatic infection in 1911. He recovered from the acute rheumatism, but had an aortic insufficiency as the result. Six years later he passed through a ten weeks' course of fever, with a positive blood culture, and a diagnosis of subacute bacterial endocarditis was rendered. He recovered from this and was apparently well for about three years, when he developed the final attack of subacute bacterial endocarditis, being ill for a period of twenty-two weeks. At the necropsy there were definite healed areas on the mural endocardium, which were evidently connected with the period of infection sustained three years previously. It appears well established that such a healing process does occur in a limited number of cases, and these no doubt explain most of the so-called cures.

DR. JOHN H. MUSSER, New Orleans: Dr. Stone spoke about the importance of pneumonia as a cause of pericarditis. I might say that in 304 cases pneumonia was responsible for the greatest number of pericardial lesions.

TREATMENT OF PERNICIOUS ANEMIA BY A SPECIAL DIET *

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This paper concerns the treatment in a series of forty-five cases of pernicious anemia in which the patients were given a special form of diet. While the problem of diet in the treatment of pernicious anemia is by no means new, in our opinion its possible importance has not heretofore been generally recognized. In 1863, seven years after the publication of Addison's second, but best known, description of the disease now called pernicious anemia, Habershon [1] wrote concerning this condition: "Many patients at an early stage completely recover under the influence of bracing air and a nutrient and stimulating diet." Other early investigators of the disease, as Biermer [2] in 1872, and Pepper,[3] in 1875, appreciated the desirability of prescribing easily digested foods as a form of medication, but no greater emphasis was placed on the value of diet. Osler,[4] however, in 1885, mentioned that "cases [of pernicious anemia] appear to have got well with change of air and a better diet after resisting all ordinary means."

During the last half century, many clinicians, following the suggestions of the pioneer writers on the subject of pernicious anemia, have advised various kinds of diet as an aid to induce a remission of the disease. More often than not, the recommendations have been of a general sort as might be given for many persons with an impaired condition of the gastro-intestinal tract, which always is present in pernicious anemia. Thus, food for the pernicious anemia patient often has been selected because it appeared to be easily digested or because it seemed particularly nutritious and strength-giving. Rarely, diets have been chosen for some assumed direct effect on the blood.

The constant presence of achylia gastrica in pernicious anemia and the frequency of an abnormal bacterial activity within the intestines have been two main reasons for establishing certain forms of dietotherapy in the disease. On these accounts, Fenwick,[5] in 1880, and Naegeli,[6] among others, recommended diets relatively sparing in farinaceous foods and relatively rich in protein. For similar reasons, yet in contrast to the majority, Hunter,[7] in 1890, and others have advised quite the opposite type of diet. Grawitz [8] recommended a diet composed chiefly of fresh vegetables, followed by one with generous amounts of protein. The idea that forced feeding with any sort of food, but especially meats, is valuable to make weak and feeble individuals healthy and strong has caused the frequent use of this form of therapy in pernicious anemia, and Mosenthal [9] has shown that it can restore in these cases a positive nitrogen balance.

Meats and green vegetables, partly because of their iron content, have for a long time been thought to be useful to improve "an anemic state of the blood." Meat apparently has been chosen at times simply because it contained blood, which was supposed to be beneficial as food for persons who had an insufficient blood supply. The scientific foundations of the value of iron-containing foods to affect the blood-forming organs were laid by Menghini [10] in 1746, when he showed that iron could be increased in the blood by feeding such foods to animals. About 200 years later, Gibson and Howard [11] made important observations on the effect of a high iron content of the diet in anemia, and showed that in pernicious anemia it can have a most favorable influence on iron metabolism. They also showed that, in cases constantly losing nitrogen, a positive nitrogen balance could be obtained without forced feeding.

One thus finds that the diet usually advised for the pernicious anemia patient is one containing a relatively high nitrogen-content and often a relatively large number of calories. The recommendations of Smith [12] and of Barker and Sprunt [13] are of this sort and, like some others, the latter wisely recommend that the food be selected with a view to giving an ordinary, well balanced

* This study was aided by a grant from the Proctor Fund of the Harvard Medical School for the Study of Chronic Disease.

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1. Habershon, S. O.: On Idiopathic Anemia, Lancet **1**: 518, 551 (May 9) 1863.
2. Biermer: Halt Zunächst einen Vorbrag über eine von ihm öfters beobachtete eigenthümliche Form von progresseiver pernicioser Anämie, welche mit Capillären Blutungen der Haut, Retina, des Gehirns &c., Cor.-Bl. f. schweiz. Aerzte **2**: 15 (Jan. 15) 1872.
3. Pepper, W.: Progressive Pernicious Anaemia or Anhaematosis, Am. J. M. Sc. **70**: 313 (Oct.) 1875.
4. Osler, William: Pernicious Anemia: A System of Practical Medicine, edited by Pepper, W., assisted by Starr, L., Philadelphia, Lea Brothers Company **3**: 898, 1885.
5. Fenwick, S.: On Atrophy of the Stomach in Relation to Pernicious Anemia, Lancet **2**: 77 (July 21) 1877.
6. Naegeli, O.: Blut Krankheiten und Blutdiagnostik, Leipzig, von Veit & Co., 1912.
7. Hunter, W.: Observations on Treatment of Pernicious Anemia Based on a Study of Its Causation, Brit. M. J. **2**: 1, 81, 1890.
8. Grawitz, E.: Zur Frage der entwegen en Entstehung schwerer Anämien, Berl. klin. Wchnschr. **1**: 641 (June 17) 1901.
9. Mosenthal, H.: The Effect of Forced Feeding on the Nitrogen Equilibrium and the Blood in Pernicious Anemia, Bull. Johns Hopkins Hosp. **29**: 129 (June) 1918.
10. Menghini, quoted by Christian, H. A.: A Sketch of the History of the Treatment of Chlorosis with Iron, Medical Library and Historical Journal **1**: 176 (July) 1903.
11. Gibson, R. B., and Howard, C. P.: Metabolic Studies in Pernicious Anemia, Arch. Int. Med. **32**: 1 (July) 1923.
12. Smith, quoted by Fitch, W. E.: Dietotherapy, ed. 2, New York, D. Appleton & Co. **3**: 257, 1922.
13. Barker, L. F., and Sprunt, T. P.: The Treatment of Some Cases of So-Called "Pernicious" Anemia, J. A. M. A. **69**: 1919 (Dec. 8) 1917.

diet to replace a quantitatively deficient and qualitatively ill balanced one, on which these patients are apt to have placed themselves during their illness.

In spite of attention to diet for the anemic patient, the influence of food on blood formation and destruction has received comparatively little consideration, and special sorts of food, because of some particular effect, have seldom been chosen for patients with pernicious anemia.

Complete starvation in man is not considered to cause anemia, but may do so in animals. However, it is known that improper food can cause, and suitable food alleviate, anemia; for example, the "iron starvation anemia" arising in infants who have partaken too long of only a milk diet, and who can be cured by food particularly containing complete proteins and iron. Incomplete diets, particularly those low in protein and relatively rich in concentrated carbohydrate food, can lead to anemia,[14] and even Shakespeare[15] recognized that improper food might impair the state of the blood. Likewise, patients with conditions due to, or associated with, vitamin deficiency experience anemia, and Jencks[16] has noticed that an abundance of vitamins favors blood regeneration. Certain foods, including liver, may benefit patients with sprue. This disease is considered by some partly dependent on a faulty diet, and resembles in numerous ways pernicious anemia, including the fact that the blood picture in the two diseases may be quite similar. Carnivorous animals and thin persons tend to have a greater percentage of hemoglobin in their blood than herbivorous animals and fat persons.[17] This further suggests, as do the observations of Morawitz and Kühl[18] on man, the favorable rôle that animal protein food may play in blood formation, although dehydration may account for the differences observed.

Some of the earlier experimental work concerning the effect of food on blood regeneration is reviewed by Pearce, Krumbhaar and Frazier.[19] Adequate proteins as well as iron are necessary for the formation of hemoglobin. Certain proteins will not suffice, such as gliadin.[20] However, the amino-acid tryptophane may have a special ability to enhance blood formation.[21] The most important recent work concerning the effect of food on blood regeneration has been done by Whipple and Robscheit-Robbins and their associates.[22] Their carefully controlled work on dogs has demonstrated clearly the value of certain foods, especially liver, on accelerating blood regeneration following acute hemorrhage and the value of iron added to the diet to decrease the anemia due to chronic blood loss.

McCollum[23] has pointed out that liver and kidneys give an exceptionally high quality protein for a low protein intake and can enhance remarkably the growth of animals. These foods are rich in nucleins, and Calkins, Bullock and Rohdenburg[24] have shown that the products of nuclein hydrolysis can stimulate growth. Whipple[25] has suggested that in pernicious anemia there may be a scarcity of the material from which the stroma of the red blood cells are formed, or that a disease of the stroma-forming cells of the marrow exists. Thus, theoretically perhaps liver and other foods rich in complete proteins may enhance the formation of red blood cells in this disease, especially by supplying material to build their stroma.

Fresh red marrow was first used as a means of treatment for pernicious anemia by Fraser[26] in 1894. He reported beneficial results when a patient ate for some time about 100 Gm. a day. It was then and has since been given apparently on the supposition of some hormone effect. Thus, numerous reports have appeared concerning the use of preparations of small amounts of concentrated bone marrow, but without definite evidence of advantage to the pernicious anemia patient. Reports regarding the effect of eating generously of fresh marrow are few and brief, but suggest that it may be beneficial. The nutritional composition of red bone marrow is similar to that of liver and kidneys. If generous amounts of red marrow and liver can improve the state of the blood in pernicious anemia, may their influence not be due to the same, but unknown, cause?

Various investigators have commented on the blood-destroying properties of certain substances derived from fats, and the rôle they may play in pernicious anemia. Stoeltzner[27] recently has reviewed the subject. Also, lipoids have been shown by Baker and Carrel[28] to be a factor in serum that can inhibit growth. Thus, founded on somewhat theoretical grounds, it seemed to us, as it did to Stoeltzner[27] and to Gibson and Howard,[11] that decreasing the amount of fat in the diet of the pernicious anemia patient might have a favorable effect on the state of his blood. Excess of fat in a diet is considered by some to favor putrefaction within the intestine, a condition frequent in pernicious anemia. Hence one might attribute any benefit derived from a low fat content of the diet to alterations in the bacterial flora rather than to some more direct effect on blood formation or destruction.

A further hypothetic reason for decreasing the fat in the diet is that we have noted it is not uncommon for these patients to have consumed throughout life unusually large amounts of food rich in fats. Patients with pernicious anemia also may give a history of partaking for years of some other type of one-sided diet. It is common for them to do so after the definite onset of their illness, when it is not unusual to find that they have a disgust for meat. Pernicious anemia is rare in certain parts of the world where diets are quite different (containing fewer dairy products, less free sugar and muscle meat) from those of the northern parts of Europe and

14. McCarrison, Robert: Faulty Food in Relation to Gastro-Intestinal Disorder, J. A. M. A. **78**: 1 (Jan. 7) 1922. Benedict, F. G.; Miles, W. R.; Roth, P., and Smith, H. M.: Human Vitality and Efficiency Under Prolonged Restricted Diet, pub. 280, Carnegie Inst. of Washington, 1919, p. 364.
15. Shakespeare: Henry IV, act 2, scene 3.
16. Jencks, Z.: Studies in the Regeneration of Blood, Am. J. Physiol. **59**: 240 (Feb.) 1922.
17. Hammarsten, O.: A Text Book of Physiological Chemistry, trans. by Mandel, J. A., ed. 5, New York, J. J. Wiley and Sons, 1908, p. 244.
18. Morawitz, C., and Kühl, G.: Der Blutumsatz des Normalen unter verschiedenen Bedingungen (Eisen, Aisen, Fleisch), Klin. Wchnschr. **4**: 7, 1925.
19. Pearce, R. M.; Krumbhaar, E. B., and Frazier, C. H.: The Spleen and Anemia, Philadelphia, J. B. Lippincott Company, 1918.
20. Smith, A. H., and Moise, T. S.: Diet and Tissue Growth: The Regeneration of Liver Tissue During Nutrition or Inadequate Diets and Fasting, J. Exper. Med. **40**: 209 (Aug.) 1924.
21. Hirasawa, quoted by Wells, H. G.: Chemical Pathology, ed. 5, Philadelphia, W. B. Saunders Company, 1925, p. 334.
22. Whipple, G. H.; Hooper, C. W., and Robscheit, F. S.: Blood Regeneration Following Simple Anemia, Am. J. Physiol. **53**: 151, 167 (Sept.) 1920. Whipple, G. H.: Robscheit, F. S., and Hooper, C. W.: Blood Regeneration Following Anaemia, ibid. **53**: 236 (Sept.) 1920. Whipple, G. H., and Robscheit-Robbins, F. S.: Favorable Influence of Liver, Heart and Skeletal Muscle in Diet on Blood Regeneration in Anemia, ibid. **72**: 408 (May) 1925 (cf. p. 431); Iron Reaction Favorable, Arsenic and Germanium Dioxide Almost Inert, in Severe Anemia, ibid. **72**: 419 (May) 1925.
23. McCollum, E. V.: The Newer Knowledge of Nutrition, New York, the Macmillan Company, 1923.
24. Calkins, G. N., Bullock, F. D., and Rohdenburg, G.: The Effects of Chemicals on the Division Rate of Cells with Especial Reference to Possible Pre-Cancerous Conditions, J. Infect. Dis. **10**: 421 (May) 1912.
25. Whipple, G. H.: Pigment Metabolism and Regeneration of Hemoglobin in the Body, Arch. Int. Med. **29**: 711 (June) 1922.
26. Fraser, T. R.: Bone Marrow in the Treatment of Pernicious Anemia, Brit. M. J. **1**: 1172 (June 2) 1894.
27. Stoeltzner, W.: Ein Vorschlag zur Behandlung der Biermerschen Anämie, München. med. Wchnschr. **68**: 1558 (Dec. 2) 1921.
28. Baker, L. E., and Carrel, Alexis: Lipoids as the Growth-Inhibiting Factor in Serum, J. Exper. Med. **42**: 143 (July) 1925.

America, in which areas the disease is relatively common. These different facts permit one to speculate on the possible partial rôle that some nutritional excess or deficiency may play in the etiology of the disease. Similar thoughts have occurred to others, including the idea that a vitamin deficiency might be a causative factor, as has been mentioned, for example, by Elders.[29]

Leafy vegetables and fruits usually are considered desirable for anemic patients, especially because of their iron content, and strawberries rich in iron appear beneficial for patients with sprue, a disease, as noted, resembling pernicious anemia. We prefer to add these foods to the pernicious anemia patient's diet not only because they are healthful ones for any person to eat, but also because, as Whipple and Robscheit-Robbins[30] have shown, certain ones have an especially favorable influence on hemoglobin production. It is quite probable, however, that their chief effect is not because of their iron content. It seems that such a factor as the character of the proteins or amino-acids in the diet is of much more importance than the iron content for pernicious anemia patients.

Numerous authorities hold the view that an intestinal bacterial toxemia plays an important etiologic rôle in this disease. One may choose to believe that any benefit these patients derive soon after beginning to take certain foods is to be attributed to changing rapidly the intestinal flora, thus decreasing a bacterial toxemia, rather than considering that the foods influence in some unknown, but more direct, manner the formation or destruction of red blood cells.

Gibson and Howard,[11] taking cognizance of Whipple and Robscheit-Robbins' work and the fact that certain lipoid substances could enhance hemolysis, fed pernicious anemia patients a relatively low caloric diet (from 1,500 to 1,900) "rich in iron [liver (daily), fruits, green vegetables, egg yolk] and low in fat" and adequate in vitamins. A somewhat similar diet but containing a less amount of food rich in purines was recommended by Fenlon[31] in 1921. Gibson and Howard,[11] besides demonstrating the favorable influence of their diet on nitrogen and iron metabolism in pernicious anemia and some other anemias, suggested that it enhanced a remission in pernicious anemia and urged its use.

MATERIAL STUDIED AND OBSERVATIONS

Following the work of Whipple and Robscheit-Robbins, we made a few observations on patients concerning the influence of a diet containing an abundance of liver and muscle meat on blood regeneration. The effect appeared to be quite similar to that which they obtained in dogs. These observations, together with the information given above, led us to investigate the value of a diet with an abundance of food rich in complete proteins and iron—particularly liver—and relatively low in fat, as a means of treatment for pernicious anemia.

Observations set forth below have been made on forty-five patients with typical pernicious anemia first partaking of such a diet when in a relapse and continuing it to date (except temporarily omitted by three), or from six weeks to two and a half years.

The special diet[32] used was made as palatable as possible and for each day was practically as follows:

1. From 120 to 240 Gm., and even sometimes more, of cooked calf's or beef liver. An equal quantity of lamb's kidneys was substituted occasionally.
2. One hundred and twenty grams or more of beef or mutton muscle meat.
3. Not less than 300 Gm. of vegetables containing from 1 to 10 per cent of carbohydrate, especially lettuce and spinach.
4. From 250 to 500 Gm. of fruit, especially peaches, apricots, strawberries, pineapple, oranges and grapefruit.
5. About 40 Gm. of fat derived from butter and cream, allowed in order to make the food attractive. However, animal fats and oils were excluded so far as possible.
6. If desired, an egg and 240 Gm. of milk.
7. In addition to the above mentioned foods, breads especially dry and crusty, potato, and cereals, in order to allow a total intake of between 2,000 and 3,000 calories composed usually of about 340 Gm. of carbohydrate, 135 Gm. of protein, and not more than 70 Gm. of fat. Grossly sweet foods were not given, but sugar was allowed very sparingly.

This diet is rich in iron and purine derivatives, containing about 0.03 Gm. of the former and about 1 Gm. of the latter.

At the time the diet was advised for many of the patients, they were able to take only a small amount of food of any sort. Under these circumstances they were encouraged to take as much as possible of liver and fruits, and at least some vegetables, while other sorts of food were not forced. During the first week of the diet, the intake was often less than a thousand calories. After about this period of time, the patients usually felt distinctly better and their appetite began to improve. Then the food was increased gradually until the complete diet was taken. The patients as a rule did so within two weeks after the diet was begun. In fact, frequently they soon became "ravenously hungry" and often anxious to eat more than the customary allowance of liver and meat.

Twenty-four of the forty-five patients carried out the regimen by weighing portions of liver and meat and estimating the amounts of the rest of their food for at least three weeks, and often for the first six after commencing the diet. The other patients, like those after leaving the hospital, have taken their diet at home, following out written directions but not weighing any of their food. Our data strongly suggest that the patients who commenced treatment in the hospital and those few able to have a trained nurse at home have improved on the average rather faster and to an even better degree than the others. When the patients had remained much better for many weeks, their diet was sometimes modified particularly by decreasing the amount of liver and fruit.

The therapeutic regimen for these forty-five patients, besides the special diet, included rest, usually at first in bed for twenty-four hours a day. All but three also took each day about 15 cc. of diluted hydrochloric acid (U. S. P.). These three, however, improved at least as much as the majority of the others. None of the patients received any especial treatment shortly before or after the diet was begun except as follows: A man, aged 69, with pronounced spinal cord lesions and advanced arteriosclerosis, was given five transfusions of blood within about six weeks while attempts were made to get him to eat. Now, three months later, he remains the least well of all forty-five, except for one woman who recently has omitted her diet. Blood was

29. Elders, C.: The Form, Course and Prognosis of the Anemia in Indian Sprue and the Etiology of Pernicious Anemia, Nederlandsch. Tidjschr. v. Geneesk. 58: 2267, 1922.
30. Footnote 22, third reference.
31. Fenlon, R. L.: A Diet for Pernicious Anemia, J. Iowa State M. Soc. 11: 50 (Feb.) 1921.
32. Details concerning this diet with sample menus are given in a paper to be published soon in the Boston Medical and Surgical Journal.

transfused to three others at about the time they first took the special diet. The red blood cell count of none was over 1,400,000 per cubic millimeter four days after transfusion.

The forty-five patients represent an essentially consecutive series seen in a relapse, and are all that have taken the special diet except one noted below. The series is not entirely consecutive, because during the time the forty-five cases were seen the following additional ones came under observation:

1. Four patients who had had their disease a long time were exceedingly sick, able to take little or no food, and died within a few weeks after they were seen. They ate no liver or kidneys.

2. Five patients consulting us but once and not taking the special diet. Letters indicate that three improved somewhat and two did not.

3. One patient that was in much better condition soon after taking the diet. This patient is not included in the series of forty-five because of several unusual complications.

Many of the forty-five patients had had definite symptoms due to pernicious anemia for more than two years, and two of them experienced such symptoms ten years before taking the special diet. A number of the cases were observed during a year or more before the diet was begun, others for several weeks, and some for only a few days. Many of the patients had remained in distinctly poor health and were unable to do their usual work for from a few months to more than a year before eating the food especially prescribed. During this time, many received various forms of therapy without distinct benefit, including transfusions of blood.

When the special diet was started, the forty-five patients that have continued to eat this kind of food fell naturally into the three following groups: (1) twelve in their first distinct relapse; (2) seventeen in their second relapse; (3) sixteen having had two or more relapses. It is thus evident that all sorts of variations of the disease occurred among the patients, and that the series was not composed chiefly of those in their first relapse, following which considerable "spontaneous" improvement is the rule.

The condition of all forty-five patients became much better rather rapidly soon after commencing the diet. All except one, who has recently omitted her diet, are now at the least in a very fair state of health, and if it were not for disorders in some due to spinal cord lesions, would have an appearance to a layman of being essentially well. However, there are only eleven patients who began the diet a year or more ago, two of whom have taken it for more than two years. Eighteen began taking the diet less than five months ago.

One of the earliest signs of improvement has been a change in the frequency of bowel movements believed to be due particularly to the diet and probably not to diluted hydrochloric acid. Within a few days, those who had had a tendency to diarrhea often began to have one formed stool a day, while, interestingly enough, those who had had normal movements or had been constipated frequently had for several days a few loose stools in each twenty-four hours. The latter patients, then, had a more natural regularity of their bowel movements and a more normal stool than they had had for some time before the diet was taken. The laxative effect of the diet has been observed also to occur in some normal persons.

Clinical improvement has been obvious usually within within two weeks. This has been heralded in the peripheral blood before the end of the first week by the beginning of a most definite rise of the reticulocytes (young red blood corpuscles) of from about 1.0 per cent to usually about 8.0 and even to 15.5 per cent of all the red blood cells. This rise occurred in all fifteen patients that have had such counts made every day or so for from one to three weeks before and some weeks after beginning the diet. By the end of the second week, these cells usually had returned close to their normal percentage. Later, when the red blood cell counts were distinctly high, it was frequent to find, as we have noted formerly, an abnormally small number of reticulocytes. Before they began to increase, the icterus index of the blood serum in these fifteen patients started to fall, and soon the yellow tint of the patient's skin disappeared. This index reached normal in from two to four weeks, and often has fallen to below normal even when the red blood cell count had increased to only 2,500,000 per cubic millimeter.[33]

The accompanying chart and table give in a synopsized manner the trends of the state of the blood in the forty-five patients, taking into consideration, on the one hand, the character of the case, and, on the other, the level of the red blood cells when the diet was begun. The data are given for all forty-five patients before and about one month (from four to six weeks) after the diet was started. Although all the patients have been observed repeatedly, data can be given for only thirty-seven at the end of about two months (from eight to eleven weeks) of treatment, and for twenty-seven between four and six months after treatment began, because eight have taken the diet for less than two months, and eighteen for less than four months. As a measure of the patient's condition, we have chosen to give in the table and chart the red blood cell count rather than the hemoglobin percentage, partly because the latter in pernicious anemia may be at about the same high level (80 per cent) with red blood cell counts of from 2.5 to 4 million per cubic millimeter. It is recognized that figures for both may vary considerably within a few hours. The figure used in synopsizing the data often represents in each instance an average of several counts made within a few days of each other.

*Average Red Blood Corpuscle Count**

Before Diet Started		After Diet Started					
		About 1 Month		About 2 Months		4 to 6 Months	
Number of Cases	Average R. B. C. Count in Millions	Number of Cases	Average R. B. C. Count in Millions	Number of Cases†	Average R. B. C. Count in Millions	Number of Cases†	Average R. B. C. Count in Millions
19	0.90	19	3.28	15	4.08	12	4.50
15	1.60	15	3.25	13	4.09	10	4.54
11	2.30	11	3.83	9	4.41	5	4.47
45	1.47	45	3.40	37	4.16	27	4.50

* The figures represent the count per cubic millimeter before and after starting special diet in three groups of cases of pernicious anemia: (1) with less than 1.2 million; (2) having from 1.2 to 2 million, and (3) having from 2 to 2.75 million before diet was begun. Also, averages for all forty-five cases are shown.

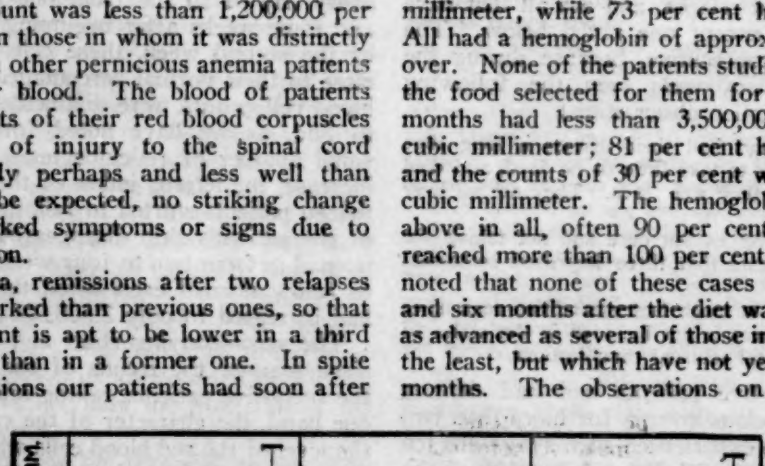
† The differences in the number of cases after about one month is because some have not taken the diet for as long as two, and others as long as four months.

Inspection of the chart and table shows the rapidity with which the red blood corpuscles increased, the high level they attained at the end of about one month, two months and from four to six months after the diet was begun, and the rather slight differences that occurred

33. These changes in the blood and numerous others will be presented in a subsequent paper.

in the bloods in the cases falling into the three groups based on the number of relapses that had occurred. The percentage increase of cells (and the same is true of the hemoglobin) at the end of a month was usually very much greater in patients starting the diet when their red blood cell count was less than 1,200,000 per cubic millimeter than in those in whom it was distinctly higher. This occurs in other pernicious anemia patients rapidly restoring their blood. The blood of patients with rather high counts of their red blood corpuscles and prominent signs of injury to the spinal cord responded more slowly perhaps and less well than others, and, as is to be expected, no striking change occurred in very marked symptoms or signs due to spinal cord degeneration.

In pernicious anemia, remissions after two relapses are frequently less marked than previous ones, so that the red blood cell count is apt to be lower in a third or subsequent relapse than in a former one. In spite of the excellent remissions our patients had soon after beginning the diet, the data in the chart show what might be expected; namely, that not only did the third group of patients (those having had more than two relapses) have on the average a slightly lower red blood cell count before the diet was started, but also that afterward their counts were apt to increase more slowly and not become quite so high as in the other two groups. Only four of the patients had red blood cell counts as low as between 3 and 2.5 million per cubic millimeter after taking the diet for about a month. The cases of three belong to this third group. Even so, two had 4,000,000 or more red blood cells per cubic millimeter at the end of four months. The other, the patient transfused several times, has now, after three months of dieting, only 2,600,000 per cubic millimeter. However, his hemoglobin has risen from 25 to 70 per cent. The fourth case with a red blood cell count of less than 3,000,000 per cubic millimeter at the end of a month belongs to the second group, and now, two and a half months after the diet was started, shows a red blood cell count of 3,300,000 per cubic millimeter.



Red blood cell counts in forty-five cases of pernicious anemia before and after beginning special diet. Cases grouped according to the number of relapses the patients had had. One and two months after diet began indicates an approximate amount of time and for any given case is not less and often somewhat more than four or eight weeks. The differences in the total number of cases after about one month are caused by the fact that some patients have had the diet for less than two, and others for less than four, months.

The data from which the table and chart were prepared have been analyzed in various ways, and the following statements indicate in a different manner than they do what satisfactory improvement was shown in the patients' blood: Seventy-six per cent of all the patients had 2,000,000 or less red blood corpuscles per cubic millimeter, with their hemoglobin usually 55 per cent or less before beginning the diet. In contrast to this, approximately a month (from four to six weeks) later, 91 per cent had over 3,000,000 and 42 per cent over 3,500,000 red blood cells per cubic millimeter, with corresponding rises in the hemoglobin percentage. After taking the diet for about two months (from eight to eleven weeks), 89 per cent (of the thirty-seven that had taken the diet this length of time) had 3,500,000 or more red blood corpuscles per cubic millimeter, while 73 per cent had 4,000,000 or more. All had a hemoglobin of approximately 80 per cent or over. None of the patients studied after they had eaten the food selected for them for between four and six months had less than 3,500,000 red blood cells per cubic millimeter; 81 per cent had 4,000,000 or more, and the counts of 30 per cent were over 5,000,000 per cubic millimeter. The hemoglobin was 80 per cent or above in all, often 90 per cent, and in several cases reached more than 100 per cent. However, it is to be noted that none of these cases observed between four and six months after the diet was started had appeared as advanced as several of those in patients that improved the least, but which have not yet had the diet for four months. The observations on the eighteen patients who have been on the diet for more than six months show that their count may fluctuate, though it has remained above 3,200,000 per cubic millimeter, and usually has been over 4,000,000, with the hemoglobin remaining at 80 per cent or more. There are three exceptions to this statement, for three patients had a relapse about eight weeks after changing their diet. One did so a year and another seven months after the special diet was begun. There was a count slightly below 3,000,000 per cubic millimeter in both for two or three weeks. Their red blood cells and hemoglobin then very rapidly increased under rest and on eating an increased amount of liver and fruit. The third patient's red cell count was 4,200,000 per cubic millimeter a month before she changed her diet. She has just resumed the special diet, and her red cell count is 1,900,000 per cubic millimeter and hemoglobin 50 per cent.

COMMENT

Cases of pernicious anemia undergoing distinct remissions often show rapid and striking improvement, such as occurred in almost all our patients. A considerable number of them have made such remarks as, "I feel better than for several years," "better than for two years," and "stronger than after the two times my blood went low before." Such statements, to be sure, are made by pernicious anemia patients having remissions that have not taken this diet, and there is no case in this series of forty-five that cannot be paralleled by a similar one having a so-called spontaneous remission. However, the records of eleven cases show that the

red blood cell count in the remission following the "liver diet" has remained distinctly higher, not only than in a former remission, but also in three cases higher, for at least two months, than in their three previous remissions. It is, thus, again pointed out here that it is rather unusual to find the red blood corpuscle count in a late remission distinctly above the level obtained in several earlier ones. A few of the patients observed for many months before they took the special diet ate, by our advice, relatively small amounts of liver two or three times a week, together with other food of the sort contained in the special diet. Under such a regimen a moderate degree of improvement occurred in some, to be followed later by a relapse of their case. It was rather striking that when the same patients were placed on a diet rich in liver they improved markedly. This suggests, as do similar observations we made some time ago in other cases, that if liver and food like it play a rôle in improving the blood of pernicious anemia, it is desirable for the patients to take such food daily and in large amounts.

The spontaneous remissions of pernicious anemia and the bizarre course it often runs make it notoriously difficult to determine accurately the effect of any procedure on the disease. All sorts of therapeutic procedures have been advised; many because a few cases improved promptly after their trial. Waves of enthusiasm for certain methods have vanished soon when it was shown that the earlier reports of benefit could be attributed readily to the natural course of the disease. There is, however, no doubt, as shown by some of the early and more recent investigators, that a well balanced, nutritious diet sometimes aids to enhance a remission. The patient may be helped by numerous other forms of treatment, such as those to change the intestinal flora, the injection of protein substances, the taking of arsenic, the transfusion of blood, and splenectomy.

At least one remission, as has been noted by Cabot,[34] takes place at some time, but at no regular time, in about 80 per cent of pernicious anemia cases. Precise data are sparse concerning the frequency, degree and rate of remissions in similar groups of cases treated in different ways. Splenectomy has caused quick and marked improvement in 64 per cent of the patients undergoing this operation, while about 15 per cent more have shown some benefit from the procedure.[35] However, the remissions that followed have been of no longer duration than those heretofore reported as of a spontaneous nature. Excluding desperately ill patients, Minot and Lee[36] noted in 1917 that about 35 per cent of forty patients treated in no especial manner had a moderate or better remission soon after they were seen. Following the transfusion of blood into forty-six similar patients, about 50 per cent continued to have definitely improved health for at least many weeks than for some time before the procedure. Not more than 20 per cent of the ninety-six patients of these two groups soon had rapid and marked increase in their red blood cells. An analysis of fifty other cases observed between 1916 and 1923 in sequence, except for several in a terminal condition, indicates that 45 per cent developed a definite remission soon after we saw them. These patients were treated in various ways by numerous physicians, but did not eat large amounts of liver or similar food. The remissions were seldom of marked degree, with the red blood corpuscles reaching 4,000,000 or more per cubic millimeter.

No entirely satisfactory data have been found concerning the frequency of remissions following the use of a nutritious high caloric diet and such a regimen as that prescribed by Barker and Sprunt. We have treated in this manner twenty-five partially selected cases, from which it appears that distinct remissions may follow such therapy in about 65 per cent of the instances. Even so, apparently the red blood cell counts of patients on such a diet and who were improved distinctly at the end of one or two months averaged less than for all forty-five who have eaten generously of liver for the same amount of time.

The evidence at hand suggests that the dietetic treatment of pernicious anemia is of considerable importance. It has been possible to demonstrate in forty-five cases seen essentially in sequence that following a diet rich in liver and low in fat a distinct remission of the anemia occurred rather promptly. The promptness and rapidity with which the red blood corpuscles and hemoglobin increased, coincident with at least rather marked subjective improvement in the sense of well being and clinical appearance of all the patients and the strikingly better health of many, is at least unusual in pernicious anemia. It is also not customary for the red blood cell counts during remissions of pernicious anemia to be so frequently of the height that occurred in these patients. We are inclined to believe that something contained in the foods rich in complete proteins is particularly responsible for the improvement in the state of the blood. The low fat content of the diet is assumed to have a less important effect than the character and amount of protein, although probably excess of nitrogen per se is unimportant. If liver and similar food is of value, every means must be taken, including the skill of the nurse and cook, to get patients to eat daily as much as possible, preferably 200 Gm. or more. Failure could be attributed to taking too little of such food.

There are no data to indicate whether the remissions in these forty-five cases will last longer than those of others.

It is possible that this series of cases eventually may be proved to be unusual in that there happened to be treated a group that would have taken a turn for the better under other circumstances. Also, time may show that the special diet used, or liver and similar food, is no more advantageous in the treatment of pernicious anemia than any ordinary nutritious diet. Let this be as it may, at the present time it seems to us, as it has to Gibson and Howard, that it is wise to urge pernicious anemia patients to take a diet of the sort described.

SUMMARY

The dietetic treatment of pernicious anemia is of more importance than hitherto generally recognized.

Forty-five patients with pernicious anemia observed essentially in sequence are continuing to take a special diet that they have now been living on for from about six weeks to two years but which was temporarily omitted by three. This diet is composed especially of foods rich in complete proteins and iron—particularly liver—and containing an abundance of fruits and fresh vegetables and relatively low in fat.

34. Cabot, R. C.: Pernicious Anemia, in Osler and McCrae's Modern Medicine, ed. 2, Philadelphia, Lea and Febiger 4, 1915.
35. Krumbhaar, E. B.: Late Results of Splenectomy in Pernicious Anemia, J. A. M. A. 67: 723 (Sept. 2) 1916.
36. Minot, G. R., and Lee, R. I.: Treatment of Pernicious Anemia Especially by Transfusion and Splenectomy, Boston M. & S. J. 177: 761 (Nov. 29) 1917.

Following the diet, all the patients showed a prompt, rapid and distinct remission of their anemia, coincident with at least rather marked symptomatic improvement, except for pronounced disorders due to spinal cord degeneration. Improvement was often striking, so that where the red blood cell count averaged for all before starting the diet 1,470,000 per cubic millimeter, one month afterward it averaged 3,400,000; and for the twenty-seven cases observed from four to six months after the diet was begun, the average count was 4,500,000 per cubic millimeter.

Patients having had two or more relapses showed on the average slightly lower red blood corpuscle counts about one and two months after commencing the diet than did those who had started it in their first or second relapse.

Change in the frequency of bowel movements, temporary increase of reticulocytes in the peripheral blood, and decrease of the icterus index of the blood serum were among the earliest signs that heralded the patient's better health.

All the patients have remained to date in a good state of health except three, who discontinued the diet; two rapidly improved on resuming it and the other has just commenced it again. As the diet was advised for most of the patients less than eight months ago, enough time has not yet elapsed to determine whether or not the remissions will last any longer than in other cases.

SUBSEQUENT OBSERVATIONS

Since the data presented in this paper were compiled, the following additional information has been obtained: The eight patients who had taken the diet for only about one month had red blood cell counts at the end of about two months of between 3,500,000 and 6,000,000, with an average of 4,400,000 per cubic millimeter. One of these had but 2,500,000 at the end of one month and now at the end of three and a half months has 4,500,000 per cubic millimeter.

The ten patients recorded as having taken the diet for only about two months showed in four to six months after starting it as follows: Seven had an average red blood cell count of 5,100,000 per cubic millimeter. One who had had about 5,000,000 had but 3,500,000 per cubic millimeter. Another who had 2,500,000 per cubic millimeter at the end of the second month had the same number two months later, although symptomatically he seemed better. The tenth patient could not obtain the proper diet between the second and fourth month, and had at the latter time 3,000,000 per cubic millimeter.

The patients who had the diet from four to six months, or longer, when the data were compiled, continued in the next two and a half months to have on the average as satisfactory counts, except as noted below. The majority of these have shown higher counts than formerly. Two of the cases have had at three different times red blood cell counts of 6,000,000 or more per cubic millimeter. Two patients who have had the diet for more than six months have recently eaten very little liver, and their counts have fallen in two months from about 4,000,000 to about 3,000,000 per cubic millimeter. The red blood corpuscles of the patient referred to on page 474 as in a relapse increased 3,000,000 per cubic millimeter during the first eight weeks after the diet was resumed.

Information at hand suggests that some cases in which transfusion is done many times before the diet is started may respond but little to it.

Resistance to Flow of Bile.—The reaction of the gastric contents may conceivably influence the resistance to the flow of bile into the intestine. For there is an immediate lessening in the resistance on the taking of food, and a gradual increase in the half hour or hour following, during which the reaction of the gastric contents is presumably becoming more acid. Since food may at this time be passing through the pylorus, a possible mechanical effect of peristalsis may in addition be invoked to explain the findings.—Elman, Robert; and McMaster, P.D.: *J. Exper. Med.*, Aug. 1, 1926.

THE RELATION OF ANEMIA, PRIMARY AND SECONDARY, TO VITAMIN A DEFICIENCY *

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The opinion that the toxemia responsible for the production of the symptoms of pernicious anemia (hematopoietic, gastro-intestinal and nervous) is of intestinal origin is chiefly based on the prominence of the gastro-intestinal symptoms of the disease. The atrophic degeneration of the tongue, the hunterian glossitis, the achylia gastrica which frequently precedes the anemia by many years, the atrophy of the gastric and intestinal mucosa found occasionally post mortem as the anatomic substratum of the achylia, direct the attention to the gastro-intestinal tract. To this may be added the association of severest anemia with intestinal parasites and occasionally with incomplete obstruction. Though the anemia found in intestinal malignancy can usually be distinguished from the pernicious anemia of unknown etiology, it is noteworthy that a relatively small carcinoma of the ileum or first part of the cecum is frequently associated with a profound anemia.

It may be assumed that the involvement of the three organ systems (hematopoietic, gastro-intestinal and nervous) has a common cause and is therefore dependent on the same toxic factor, or that the phenomena are dependent on one another. The latter view would concede to the achylia gastrica and the atrophic changes in the fundus glands and intestinal mucosa a dominant rôle, which leads secondarily to the involvement of the other systems by the absorption of a hemotoxic and neurotoxic substance.

It seems true that the stomach, and especially the upper small intestinal tract, are invaded by a flora in pernicious anemia which is absent or scanty in normal conditions. Certain investigations, following the earlier work of Christian Herter, have directed attention again to the presence of large numbers of *B. aerogenes-capsulatus* (*welchii*) in the duodenum, and Kahn and Torrey [1] were able to produce by intravenous injection of the toxin of this organism a disease picture in monkeys that is very suggestive. In the opinion of these investigators it is a "specific toxin" which produces the profound anemia with its characteristic features, the achylia and the combined sclerosis of the spinal cord.

Other investigators observed that the common colon bacillus is found in much greater frequency and number in the upper intestinal tract in pernicious anemia patients than in normal persons. Both *B. welchii* and *B. coli* being normal inhabitants of the human intestinal tract, their etiologic relation to pernicious anemia must depend either on an abnormally large number present in a part of the small intestine, where they are normally exceedingly scarce and uncommon, or on certain specific strains that have the faculty of forming a specific poison not formed by other strains of the same bac-

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1. Kahn, M. C., and Torrey, J. C.: A Pernicious Anemia-Like Blood Condition Produced in Monkeys with B. Welchii Toxin, Proc. Soc. Exper. Biol. & Med. 22:8-13, 1925.

terial species. That the latter assumption is not without parallelism and foundation is suggested by some of our own work on the production of proteinogenous amines by *B. coli*.[2] Of twenty-nine strains of *B. coli* studied, only six were able to convert histidine by decarboxylation into histamine. These six strains could not be distinguished by any other morphologic, cultural or chemical characteristics from the other strains of this group. The relation of similar amines to pernicious anemia was suggested some twelve years ago through a paper of Iwao,[3] who reported that he had produced a very severe anemia in guinea-pigs by the subcutaneous injection of p-oxyphenlyethylamine (tyramine). This anemia resembled pernicious anemia in most details of the blood picture. Since tyramine is formed by the action of *B. coli-communis* on tyrosine by decarboxylation, and since tyramine is normally found in the intestinal content of man,[4] Iwao's paper seemed a very suggestive contribution to the pathogenesis of pernicious anemia. Accordingly, one of our collaborators, Mr. R. L. Harris, and one of us [5] attempted to repeat Iwao's work about six years ago, but unfortunately with absolutely negative results. No other attempt is known to us that has confirmed the work of the Japanese investigator. Our present knowledge of the relation of dietary factors to the production of anemia permits of a possible explanation of the success of the Japanese investigator and our own failure, which will be discussed at a later date.

It is known to all students of the subject that in Scandinavia and Finland a form of pernicious anemia is endemic which is, in all details of the blood and organ changes, indistinguishable from Addison's pernicious anemia, but the etiology of which is known. This is the anemia due to the tapeworm *Bothriocephalus latus*. It is of utmost importance for our concept to note that, according to the investigation of Sievers,[6] about 20 per cent of the total population of Finland are carriers of this species of tapeworm. But only a fraction of 1 per cent of these hosts suffer from pernicious anemia.

The causal relationship between the tapeworm and the occasional severe anemia of its host is chiefly based on the experience that in many cases the complete expulsion of the parasite is followed by permanent recovery. But while this is true in many instances, it is by no means so in all, and the usual explanation is that the morbid processes have progressed so far that a restitution of the degenerative changes in the organs has become impossible. The opinion that in all cases of *Bothriocephalus* anemia we have to deal with the coincidence of a "cryptogenic" true Addison anemia occurring in a tapeworm carrier is completely disproved on the basis of numerical statistics and deserves no further discussion.

Have we then to assume that only certain individuals of the species *Bothriocephalus latus* form a hemotoxic and neurotoxic poison leading to the severe anemia? This is possible but highly improbable.

It seems that the problem is a more general one and is the same if we have to deal with a poison formed by microscopic organisms or by macroscopic parasites. We believe that the poison is formed in many instances, but is not absorbed or is destroyed before absorption from the intestinal tract. This assumption is suggested to us by our work on the toxic amines.[7] We could show that the normal intestinal tract frequently contains very large doses of these poisons, which if they could reach the circulation as such would cause violent sickness or death. They are probably rendered physiologically inert in their passage through the intestinal wall. We seem to have to deal not only with a simple increased permeability but also with a special function of the intestinal tissue, which seems to be an organ of primary importance in the catabolism of certain protein derivatives. The term permeability might be used for brevity, if this mode of action is understood, but it must be kept in mind that the intestinal wall does not normally act merely as a semipermeable membrane which does not partake chemically in the catabolism of the poisons, but in fact takes a most active part in the chemical processes that render these potent substances harmless.

The whole problem seems, therefore, to center round the query, What are the conditions under which the normal viability and impermeability of the intestinal wall is lost? It is safe to state generally that an extensive cell injury must have taken place which leads to profound alteration of the normal composition, structure and function of the intestinal epithelium, and perhaps also of the liver cells. This alteration we believe to be, at least in some cases, the result of a long standing deficiency in vitamin A (and perhaps B and C also) due to chronic underfeeding [8] with these essential foodstuffs for a period of many years or due to a deficiency of their utilization. Vitamins may be supplied in the diet, but they may be destroyed under the influence of a chronic infection or are not available for some reason.

We believe that the cryptogenic primary pernicious anemia of Addison is, at least in certain cases, an intoxication through bacterial poisons formed sometimes by the colon bacillus, at others by the streptococcus and Welch bacillus. These poisons, which are hemolytic, myelotoxic and neurotoxic, are formed most commonly in the upper small intestinal tract in persons who suffer from achylia gastrica. The latter anomaly, achylia gastrica, is a relatively frequent dysfunction of the organ, and attempts have been made to explain it anatomically by the atrophy of the fundus glands.[9] There is, however, little doubt possible in our opinion that chemical changes in the cells of the intestinal wall precede any assumed possible structural changes. Atrophy of the mucosa of the upper small intestinal tract is not infrequently associated with the gastric atrophy in patients with pernicious anemia. This gastric achylia, perhaps associated with a similar dysfunction of the glandular structure of the duodenum, jejunum and ileum, leads to an invasion of the small intestine by many microorganisms which form soluble poisons. These poisons are absorbed unchanged only in such patients suffering

2. Hanke, M. T., and Koessler, K. K.: Studies on Proteinogenous Amines, XII, The Production of Histamine and Other Imidazoles from Histidine by the Action of Micro-Organisms, J. Biol. Chem. **50**: 131-191 (Jan.) 1922.

3. Iwao, Toku: Beiträge zur Kenntnis der intestinalen Autointoxikation, Biochem. Ztschr. **59**: 436, 1914.

4. Hanke, M. T., and Koessler, K. K.: Studies on Proteinogenous Amines, XVII, On the Faculty of Normal Intestinal Bacteria to Form Toxic Amines, J. Biol. Chem. **59**: 835-853, 1924.

5. Cited by Wells: Chemical Pathology, ed. 5, p. 342, footnote 59, 1925.

6. Sievers: Till Kännedomen om förekomsten of intestinalparasiter hos manniskan i Finnland, Finska läk.-sällsk. handl. **48**: 1, 1906, quoted from Tallqvist: Ztschr. f. klin. Med. **59**, 1907.

7. Hanke, M. T., and Koessler, K. K.: Studies on Proteinogenous Amines, XXI, The Intestinal Absorption and Detoxication of Histamine in the Mammalian Organism, J. Biol. Chem. **59**: 899-903 (April) 1924.

8. Cramer, W.: On Vitamin Underfeeding, Brit. J. Exper. Path. **3**: 298 (Dec.) 1922; On the Mode of Action of Vitamins, Lancet **1**: 1046 (May 26) 1923; Vitamins and the Borderland Between Health and Disease, Lancet **1**: 633 (March 29) 1924.

9. See, however, the recent critical review by Faber, Knud: The Intestinal Origin of Pernicious Anemia, Ann. Clin. Med. **4**: 788, 1926.

from achylia if the intestinal cellular structure and function have been profoundly changed, and this may be brought about through vitamin deficiency or underfeeding over many months and years. Since vitamin A underfeeding for several months leads to intestinal atrophy,[10] it is also possible that the atrophy of the gastric glands and the resulting achylia are in some instances the result of the vitamin deficiency. The normal absence or poverty of micro-organisms in the duodenum may not be due alone to the acidity of the gastric juice, but very probably also to the bactericidal power of the duodenal juice.[11]

Any theory that tries to explain the etiology and pathogenesis of pernicious anemia has to prove its validity in two ways: (1) clinically, by the analysis of the morbid history of the patients and the efficacy of the treatment based on the consideration of the pathogenic factors involved, in this instance, achylia and the dietary factors; and (2) by the experimental production of the disease in animals.

CLINICAL CONSIDERATIONS

The idea that there might exist a definite relationship between a faulty diet, i. e., a diet deficient in vitamins, and severe anemia of the pernicious type, suggested itself to one of us (K.) through observation of a patient who entered our medical service at the Cook County Hospital in 1925, with the examining room diagnosis of scurvy.

S. L., a man, aged 60, complained chiefly of weakness. He was a very uncooperative patient, and the junior intern, who wrote the first history, noted a peculiar mental attitude which showed itself chiefly by being insulted and offended when he was asked questions regarding his feelings and complaints. His mouth, gums and tongue had been sore for the last few days. He was constipated but had no acute abdominal distress. Neither nausea nor vomiting was present. There were no complaints or subjective symptoms on the part of the respiratory or cardiovascular systems. There were no genitourinary symptoms. On the part of the neuromuscular system, there was weakness progressing during the last four months, but no generalized pains, tremor or paralysis. The patient did not remember having had any previous illness. No operations had been performed. There was no history of venereal diseases. The father died at the age of 70 of unknown cause; the mother, of old age (?). The patient had had four brothers and five sisters, about whom he could give no information. He did not use tobacco or alcohol. Questioned regarding his diet, he informed us that he had lived for many years chiefly on bread, rolls and coffee.

The patient appeared weak and ill. The mucous membranes of his mouth and his tongue were pale. The gums around the teeth, which were in very poor condition, were spongy and red, and the teeth were loose. Deep palpation of the ribs and chest wall was painful. The extremities showed marked loss of weight, muscular atrophy and some pain on pressure. Subcutaneous hemorrhages were seen under the skin in the popliteal region on the right side. There were macular lesions, roughly symmetrically distributed on the back, abdomen, arms and legs. The center was lighter than the adjacent skin, and was surrounded by a darker pigmented ring. The lesions varied in size from one-eighth to three-eighths inches (3 to 10 mm.) in diameter. There were no subjective symptoms, and the patient did not know how long he had had the lesions or how they had commenced. The most probable diagnosis, after the first examination, was scurvy. An antiscorbutic diet was ordered. A few days later a complete study of the patient's blood revealed: hemoglobin (Dare), 35 per cent; erythrocytes, 1,030,000; leukocytes, 2,100. Differential count revealed: polymorphonuclears, 41 per cent; lymphocytes, 58 per cent; mononuclears, 1 per cent. There were moderate anisocytosis and poikilocytosis, with marked polychromatophilia. No erythroblasts were present. The volume index was 1.12; color index, 1.7. A diagnosis of aplastic pernicious anemia was made.

The patient presented thus a picture which had certain features suggestive of scurvy; namely, sore mouth and gums, subcutaneous hemorrhages and pains on pressure over the bones; but the blood findings were characteristic of the aplastic form of pernicious anemia. The extremely restricted diet on which the patient had lived for many years, consisting entirely of starches and coffee, contained none or very little of the essential vitamins A, B, C or D.

While this patient was in our ward and we were deliberating over the relation of this anemia to his faulty diet, a man with a typical case of pellagra entered our service in the same ward. He showed the characteristic skin lesions on the back of his hands and forearms. His blood was perfectly normal and no anemia was present, but he showed zones of paresthesia in the extremities.

The relation of pellagra to any single one of the vitamins has not been proved; but that the dietary factor and especially vitamin B are of primary importance in the cure of the disease seems probable through the work of Goldberger. The relation of vitamin B to the nervous symptoms in pellagrins (paresthesias, peripheral neuritis, and the combined sclerosis of the spinal cord) recalls similar symptoms present in pernicious anemia. The relationship of vitamin B to the form of polyneuritis of man known as beriberi comes to mind in this connection.

The tendency to hemorrhage, so predominant a symptom in scurvy, occurs quite often in pernicious anemia, and it seems reasonable to think of a common causative factor—the absence or deficiency of vitamin C in both conditions.

The vitamin theory of pernicious and other severe anemias, which forms the basis of our experimental work and of the treatment of our patients, might be thus expressed:

1. The blood changes and the changes in the gastrointestinal tract may be due to vitamin A underfeeding over a long period of years.
2. The nervous symptoms might be related to an absence or deficient quantity of vitamin B.
3. The tendency to hemorrhages found in severe anemias may be due to the partial or complete lack of vitamin C.

This theory does not assume to invalidate the importance of bacterial poisons for the pathogenesis of pernicious anemia. The tissue changes brought about by the chronic vitamin deficiency may facilitate the action of these poisons.

With these considerations in mind, as well as other clinical observations, an attempt was made to learn whether a condition similar to human pernicious anemia might be produced in experimental animals, by producing protracted vitamin deficiency under suitable conditions.

EXPERIMENTAL

White (albino) rats of known pedigreed healthy stock were used in our experiments, first, because they are the animal of choice in vitamin studies, and secondly, because they are by nature an omnivorous animal and for this reason held out more promise for the production of a disease thus far known only in man.

10. Cramer (footnote 8, second reference).
11. Löwenberg, W.: Ueber die pathologische Bacterien Ansiedlung im Duodenum und ihre ursächlichen Factoren, Klin. Wchnschr. 5: 548-551, 1926.

The animals were divided into three groups. The first of these was placed on a slightly modified laboratory diet used by Cramer [10] in his studies on vitamin underfeeding (table 1). This is our low fat-soluble A diet, which is similar to the diet of many people. Nothing is extracted—it is fed in the natural state.

TABLE 1.—*Laboratory Diet*

	Gm.
Bread	30.0
Rice	20.0
Corn meal	20.0
Casein	12.0
Minerals	5.0
Cottonseed oil	12.5
Brewers' yeast (Harris)	100.0 mg. to each rat
Minerals	
Sodium chloride	0.5515
Calcium chloride	0.6042
Calcium carbonate	1.6140
Dipotassium hydrogen phosphate	0.7769
Potassium carbonate	1.2100
Magnesium carbonate	0.2090

For the low water-soluble B diet, the brewers' yeast is omitted, for there is some B in the natural foods. The same "recipe" is used otherwise. The animals are fed as much as they will eat; their dishes are never empty.

The second diet, the vitamin-rich diet, differs from the first only by the substitution of 12.5 cc. of cod liver oil for the cottonseed oil. Foods in the natural state and Squibb's cod liver oil were used. This diet is rich in fat-soluble A and also in water-soluble B.

The third diet contained no fat-soluble A. This was removed from the cornmeal bread and casein by three successive extractions with hot 95 per cent alcohol, each lasting six hours, and subsequent washings with ether. The mineral mixture used was the same as in the laboratory diet. Here everything but the rice, minerals and brewers' yeast is extracted free from fat-soluble A. The extraction of the A also took out the water-soluble B vitamin, so in the water-soluble B free diet this same diet is used but the brewers' yeast is omitted and cod liver oil is substituted for the cottonseed oil.

Before the changes in the blood of our animals under varying conditions of diet are discussed, it is necessary to make some statements regarding the "normal" blood findings of healthy rats. The number of red cells per cubic centimeter, if taken from peripheral vessels, varies only slightly with the age of the rat after the animal is 90 days old, and is given by Jolly [12] as between 8.5 to 8.8 millions. Cramer [13] and his collaborators give from 10 to 10.9 millions for rats above 60 days of age. Our own determinations were made on twenty-five rats, and the average of 128 counts on these animals, none of which were below 60 days of age and which were on a vitamin-sufficient diet, was 15.1 Gm. of hemoglobin; 8,500,000 erythrocytes and 8,800 leukocytes. Old rats, between 1 and 3 years of age, show much higher figures. Seventeen such rats studied gave an average of 18.1 Gm. of hemoglobin, 10,260,000 erythrocytes and 12,200 leukocytes.

Five weeks old rats, which have been nursed by a mother who has received in her diet ample vitamins, weigh about 40 Gm. When such rats are kept on a vitamin A free diet for from eight to twelve weeks, so that they vary in age from 13 to 17 weeks, their weight is only around 60 to 90 Gm. After this they fail to increase any more in weight, which remains constant for from two to three weeks, then they begin to decline progressively, become emaciated, refuse to eat and lose weight rapidly, so that a tenth of their maximum weight, or one sixth of the present weight, may be lost in from twenty-four to forty-eight hours. The final marked drop in the weight curve is produced by diarrhea, by dehydration and to some degree probably by metabolizing their own body tissues (starvation). Such an animal will not take food or liquids unless they are placed in its mouth. It is emaciated and very weak. Muscular coordination is poor; clonic convulsions occur occasionally. It is certain to succumb unless its body fluids are increased by intraperitoneal injections of salt solution and glucose. Soon after the glucose and salt are given, the convulsions stop and the rat will eat eagerly when fed, but is still too weak to feed itself. Cod liver oil or butter must be forced by mouth, along with sugar and a weak solution of sodium bicarbonate (from 0.5 to 1 per cent). Some animals develop a paralytic ileus, and their life can be saved only with much careful nursing. If the animal is now kept on a diet rich in vitamin A, it will soon apparently gain its normal health but will be smaller and of less weight than a normal control animal of the same age. If after recovery the vitamins are removed from the diet a second time, the maximum weight loss may take place in as short a time as eleven days.

Chart 1.—Observations on rat 18: *D*, died.

BLOOD CHANGES

When rats that are on a vitamin A free diet are kept on this diet until they die, the blood during life shows the following changes: After an initial rise in weight, which is associated with a concomitant increase of hemoglobin and erythrocytes, there occurs usually a drop both in erythrocytes and in hemoglobin soon after the weight curve began to go down, to be followed soon by a rise of both erythrocytes and hemoglobin. The color index during these changes varies but little, staying in the neighborhood of 1. A constant feature of the picture is the agonal rise in both erythrocytes and hemoglobin and a fall in leukocytes, which is associated with the terminal loss in weight and is probably due to dehydration.

In attempting to understand more thoroughly what takes place in the blood of a rat that is dying from lack of vitamin A, we attempted to hold the weight constant

12. Jolly, J.: Variations de l'hemoglobine, du nombre des globules rouges, etc., chez le rat blanc, Compt. rend. Soc. de biol. **66**: 136-139, 1909.

13. Cramer, W.; Drew, A. B., and Mottram, J. C.: On Blood Platelets, Proc. Roy. Soc. B **93**: 449-467, 1923.

in a vitamin A depleted animal by the addition to the diet of a small quantity of vitamin A in the form of butter. The quantity of vitamin added seems to be a factor of primordial importance as regards the rate and intensity of regeneration. One group, illustrated by rat 11, was given enough vitamin to keep the animal in a state of chronic vitamin deficiency but yet to prevent death. After three weeks, when the animal had declined in weight (10 Gm.), the quantity of vitamins was increased to produce a normal weight curve.

The blood during this period of chronic vitamin A deficiency, lasting three weeks, shows a slight decrease in erythrocytes, which is followed by an increase in these cells. Also the hemoglobin drops at first but then comes back soon to its initial value. On the second addition of vitamin to the diet, the hemoglobin as well

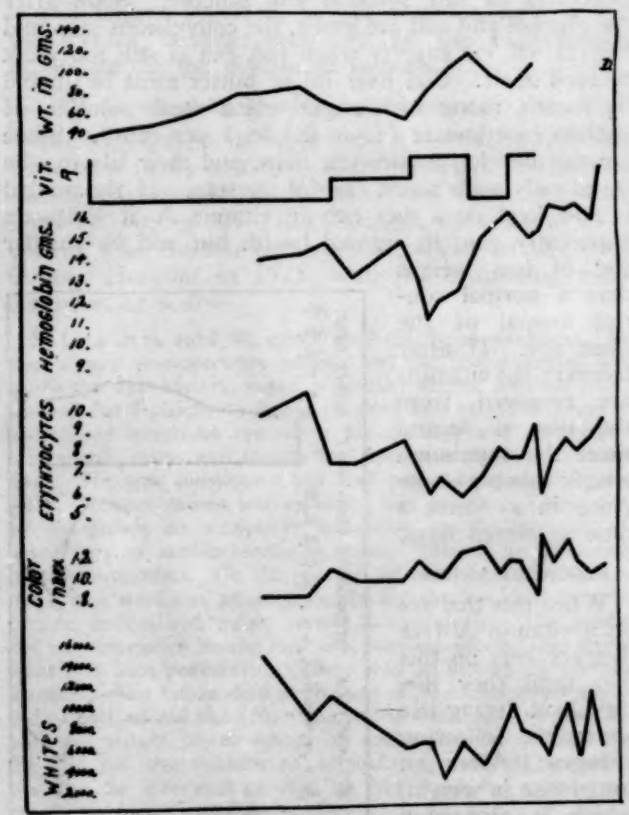

Chart 2.—Observations on rat 11: *D*, died.

as the erythrocytes shows a decided and almost parallel drop; also the leukocytes fall almost synchronously. Two weeks later, after this acute drop, erythrocytes, hemoglobin and leukocytes return to normal. This "blood crisis" follows the sufficient storage of vitamin in the body. During this period the color index is 1 or above 1. From two to three weeks after the first vitamin addition there appear a number of blue staining (basophilic) young cells of slightly increased diameter. These polychromatophil new erythrocytes are present in a remarkable abundance after the second ample addition of vitamin. As the animal progresses to normal strength, these basophilic cells diminish again in number. The color index following the second addition of vitamin rises above 1.

In a second group of rats a quantity of vitamin A, larger than in the preceding group, was added, so that after three weeks ample vitamin was present (stored) to produce growth without any further addition of vitamin being required. Rat 15 is used as a specific example of this group (chart 3). At the age of 15 or 16 weeks, when the weight of this rat began to remain stationary, vitamin A in the form of butter fat was added to its diet to hold the weight stationary and prevent death. Following the addition of a small quantity of fat soluble A in the form of butter, the weight of the rat remained about constant for four weeks, and then increased steadily from 67 to 124 Gm., showing a gain of 57 Gm. in less than three weeks. The effect of the vitamin addition is much more rapid as to visible improvement in the weight of the animal than in respect to the blood. If vitamin exhaustion has once taken place, the regeneration in the hematopoietic system trails behind the regeneration in the other organs if measured by the count of the erythrocytes and the determination of the hemoglobin. But the microscopic morphologic study of the blood at this time shows that most lively regeneration is proceeding in the bone marrow, for polychromatic basophilic erythrocytes appear in the blood as soon as the regeneration begins. The polychromatic young cells increase steadily in number four to five weeks after vitamin A has been first added to the diet, which until then has been vitamin free. Some of the polychromatic cells, and a few of the other orthochromatic erythrocytes, are considerably larger than the normal average cells (macrocytes). The hemoglobin and erythrocytes show no changes, but the initial anemia persists. A definite leukopenia takes place.

Six weeks after vitamin A has been added to the diet, it is taken away again. But the hemoglobin and erythrocytes continue to increase, the bone marrow being undoubtedly still stimulated by the first addition of vitamin. Hemoglobin as well as red cells reaches about the same values as at the beginning of the experiment. Only the leukopenia persists, the leukocytes being about half as numerous as when the experiment started. All young immature polychromatic erythrocytes have disappeared from the blood. The weight of the animal three weeks after the vitamin had been removed again from the diet fell 43 Gm., and the animal seemed sick. A few days later mandibular abscess developed, which was drained. Vitamin A was now added again to the diet, this time in the form of cod liver oil, and the feeding was forced. The second addition of vitamin A to the diet led promptly to an accelerated new formation of blood cells in the bone marrow. The effect of the second removal of the vitamin A from the diet now became apparent. The hemoglobin examined nine days after the second addition of the vitamin and four weeks after the fat soluble A had been removed the second time had fallen from 16.6 to 12.2 Gm., and the erythrocytes from a maximum of 10,700,000 to 6,030,000. Very few basophilic polychromatic erythrocyte cells appeared in the blood film. One week later the hemoglobin had fallen to 9.3 Gm. and the erythrocytes to 4,970,000. The color index was above 1. The stained blood film showed a very marked polychromatophilia and definite anisocytosis, with many microcytes and macrocytes as well as erythroblasts of the normoblastic type. Four days later the blood showed a large number of normoblasts and a few megaloblasts; the polymorphonuclear leukocytes showed the extreme nuclear fragmentation found frequently in severe anemias. The accurate measurement of 500 erythrocytes when charted showed the type of curve described by Price-Jones[14] as characteristic of

14. Price-Jones, C.: J. Path. & Bact. **25**: 487 (Oct.) 1922; Guys Hosp. Rep. **74**: 10 (Jan.) 1924.

pernicious anemia. These experimental data seem to prove that the addition of a small quantity of vitamin A to the diet of an animal, long depleted in its vitamin reserve, brings about rapid formation of new red blood cells. The rate and intensity of this regeneration is, within reasonable limits, a function of the quantity of the vitamin added. Blood regeneration cannot take

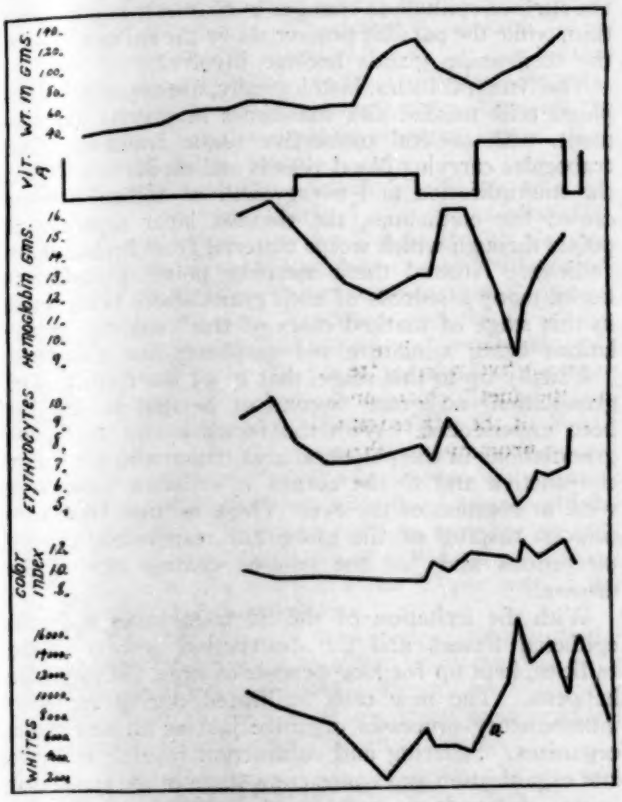

Chart 3.—Observations on rat 15: a, abscess.

place without the presence of vitamin A. Rats while in a state of chronic vitamin A deficiency develop a severe anemia, which, after ample vitamins are added to the diet, shows the typical blood picture of an early Addison anemia, characterized by all the features of rapid blood regeneration.

GENERAL CONSIDERATION AND TREATMENT

On the basis of our clinical observations, experimental work and theoretical considerations based on a study of the problem of chronic vitamin underfeeding, we would suggest that vitamin A deficiency and underfeeding may be a factor of primordial importance in the production of severe anemias of children and adults. We believe that the pernicious anemia of the megaloblastic as well as aplastic type may be, at least in some cases, intimately related to a deficiency of vitamin A. This deficiency in the vitamin content of the body cells might be produced in a variety of ways: first, through chronic underfeeding with the essential food stuffs over a period of many years; second, through long standing infections which might be able to deplete the body of its vitamin reserve stock. On the other hand, a vicious cycle may be established through the fact that vitamin exhaustion opens the way to infection and intoxication through increased permeability of all the mucous membranes of the body.

It is clear that if this concept of the pathogenesis of pernicious anemia and other severe anemias is correct, the treatment of the disease must be based on a replenishing and restocking of the body with vitamins through a proper dietary management.

The diet used must not only be ample and of high caloric value but must be especially rich in vitamin A as well as vitamins B and C. Vitamin A is first supplied to the anemic patient by giving cod liver oil, 5 cc., four times daily. Butter (not oleomargarin), five or six pats, should be taken daily on the vegetables and on bread. Whole wheat bread, made with milk instead of water, is richer in vitamins A and B than white bread. Whole milk and cream are valuable foods, since they contain, especially, in summer, a good deal of all three vitamins A, B and C. At least six glasses of milk and one-half pint of cream should be drunk each day. Eggs (the yolk) are rich in vitamin A and contain also B. Vegetables that should be taken daily are tomatoes, fresh, stewed or canned. They are a supreme source of vitamin B and C and contain also A in smaller amounts. Then spinach (A, B); lettuce (A, B, C); cabbage (fresh raw, A, B, C); carrots (A. B, C). In addition or as substitutes may be eaten: fresh string beans (A, B, C); Swiss chard (A, B); dandelion greens (A, B); cauliflower (A, B, C); endive (A, C); peas (A, B); sweet potatoes (A, B), and hubbard squash (A). Fruits should be taken daily to furnish plenty of vitamin A and to a lesser degree A and B. The best fruits for this purpose are oranges, lemon juice, grapefruit, raspberries (canned or fresh) and apples (preferably as sauce).

Of meats, liver and kidney contain the largest amount of vitamins A and B and probably also some C. Sweetbreads and brains stand next in richness of vitamins. Beefsteak or any other part of the skeletal muscle is much inferior in vitamin content.

In table 2, the quantity and best kinds of food to be taken in twenty-four hours are given in condensed form.

In addition, the patient should take, immediately before each meal, 30 drops of dilute hydrochloric acid in water, orange juice or lemonade. The same amount

TABLE 2.—*Quantity of Foods to be Taken for Twenty-four Hours*

	Gm.	Carbohydrate	Protein	Fat	Calories
Cod liver oil, 5 cc., four times daily	20	..	..	20	180
Butter, 5 or 6 10 Gm. prints	60	..	0.6	51	461
Milk, 6 glasses (250 cc. each)	1,500	75	45	60	1,020
Cream, 3 oz. (100 cc.)	100	5	3	22	230
Egg yolk (or whole egg), 2 or 3	150	..	25	6	234
Orange (or fresh prepared orange juice)	100	10	1	0	44
Tomatoes (raw or canned)	100	3	1	0	16
Lettuce (or raw cabbage)	100	3	1	0	16
Spinach (or carrots)	100	3	1	0	16
Meat (liver, kidney, sweetbread or brain)	100	..	20	14	211
Bread (whole wheat made with milk)	100	..	..	..	248
Total		99	98	173	2,670

should be taken during the meal and the same amount immediately after the meal. It should be taken slowly through a glass tube. Later on, when the patient is accustomed to these quantities, 300 cc. of a 0.1 to 0.2 per cent acid solution is introduced from fifteen to thirty minutes before each meal by means of a Rehfuss tube, which may be passed into the esophagus by the patient himself. If the patient complains of burning in the stomach after taking the acid, the amount taken or strength must be decreased. Six yeast tab-

lets, equal to 200 mg. of concentrated yeast extract, are to be taken each day, two with each meal.

It is too early to make any premature claims regarding the efficiency of this dietetic management of patients suffering from pernicious anemia. A disease whose life history extends frequently over a period of years from the day the diagnosis is established, and which by its very nature is characterized by remissions of marked spontaneous improvement and relapses, would invite fallacies and error of judgment on the part of an overenthusiastic therapeutist. We therefore shall content ourselves at this time with the statement that it is our impression that the dietetic treatment of pernicious anemia which we have outlined seems to be of benefit to patients suffering from anemia. The future alone will decide whether these benefits are of the nature of a permanent cure.

CONCLUSIONS

1. Blood regeneration cannot take place without the presence of vitamin A.
2. The addition of vitamin A to the diet of animals, long depleted in their vitamin A reserve, brings about rapid formation of new blood cells.
3. The rate and intensity of the blood regeneration is a function of the quantity of vitamin A added.
4. A condition similar to human pernicious anemia has been produced in experimental animals.
5. A definite relationship exists between a state of chronic vitamin deficiency and certain anemias.
6. The routine use of a rationally balanced diet which has proved itself thus far of decided value in the blood regeneration of patients suffering from severe anemias, aplastic as well as erythroblastic, is the most promising procedure in the treatment of certain anemias, especially pernicious anemia.

IS TRACHOMA A DEFICIENCY DISEASE?

AN HYPOTHESIS FOR PUBLIC HEALTH CONSIDERATION *

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Trachoma was by regulation of the Unites States Public Health and Marine Hospital Service declared "a dangerous contagious disease" in 1897. Under this regulation, operating at all ports of entry since 1899, many undesirable immigrants have been excluded who, if admitted, were considered likely to become public charges. The ruling was a commendable one for this reason alone. Health officials almost without question accepted this ruling. State after state made this "dangerous contagious disease" reportable. The movements of those affected with trachoma have often been limited as if this regulation were literally true. Has the time not come for state health officials to reconsider the facts with regard to trachoma, its contagiousness and its epidemiology? Is it possible that trachoma may be primarily a deficiency disease?

SYMPTOMS AND CURE

Trachoma is the name given a pathologic condition of the conjunctival tissues, usually first noted as a marked folliculosis in the lining of the upper lid with a thickening, followed by marked subepithelial inflammation of these tissues. As the pathologic condition progresses, the thickening and inflammatory evidence may extend even to the tarsus. The lining membrane of both lids may become involved. The normal subepithelial lymphoid structures seem to multiply almost indefinitely, and with this overgrowth and encroachment the surface epithelium changes in character and becomes thin, while the papillae project above the surface. Later, the meibomian glands become involved.

The lymph follicles, histologically, are apparently lymphoid cells massed and sometimes in orderly arrangement, with skeletal connective tissue framework and trabeculae carrying blood vessels and capillaries. When the multiplication and overgrowth of follicular tissue crowd the epithelium, the thinned layer separates at points through which weeps material from broken down follicles. Around these weeping points granulations begin, many hundreds of such granulations being noted in this stage of marked cases of trachoma, the granulations being miniature red raspberry-like elevations.

Usually up to this stage, that is, of the formation of granulation, no great discomfort beyond itching has been experienced. With the formation of the rough granulations in the palpebral area, trauma to the bulbar conjunctiva and to the cornea is constant with every wink or rotation of the eye. These injuries from continuous rasping of the globe are responsible for the ulcerations and for the pannus coming late in the disease.

With the irritation of the lid membranes and subepithelial tissues and the destructive process in the follicles, kept up for long periods of time, the inevitable happens. The new cells infiltrated during recurring inflammatory processes organize just as all new tissue organizes. Scarring and contraction result. It is the late organization and contraction stage in the tissue that brings deformities, such as the turning of the lids inward to such an extent that the lashes rake the globe continuously or, through thickening, make it impossible to close the eye.

Trauma in the granular stage is heightened by the inescapable urge to rub the eye. Trauma is often intensified by intermittent infection of known bacteria, Koch-Weeks infection, Morax-Axenfeld infection and pneumococci, and the whole category of known pathologic eye flora find invasion easier. Some of these bacteria, the Morax-Axenfeld group, in the judgment of experienced ophthalmologists, notably MacCallan, hasten certain stages of trachoma.

The productive discharges seen in various stages of trachoma are generally believed nowadays to be caused by the destructive action of miscellaneous invading bacteria.

Trachoma is slow in progress. A period of years usually elapses between the overdevelopment of lymph follicles in the lids and their breakdown, and still additional time, often a period of years, is required for enough infiltration of new cells to form the later scar tissue.

Treatment, both locally and systemically, sometimes operative in the follicular and early granular stages, may result in cure. Perhaps many spontaneous recoveries occur. In the late stages, extensive cosmetic surgery may be required. When the disease has reached the roughening stage of the palpebral conjunctiva, and especially when ulceration near the cornea has occurred or pannus has begun, impairment of vision is inevitable.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

Lid deformity or even blindness may follow in a large number of cases and is always preceded by long periods of suffering.

GEOGRAPHIC DISTRIBUTION

Geographically, trachoma is one of the widespread scourges of the earth. Egypt and Palestine are said to be the countries worst afflicted. China, especially in the interior of the country, has a very high percentage of trachoma. The disease is extremely common in all northern Russia and in Siberian Russia; in that section of Hungary around Galicia; in East and West Prussia; in Poland, and to a certain extent throughout all the Balkan states. The disease is common in Japan. It is prevalent in northern Brazil.

Many sections of the United States are affected. Surveys by Taliaferro Clark, J. W. Schereschewsky, McMullen, and others of the Public Health Service, indicate a high incidence of trachoma among native white people in the mountainous sections of eastern Kentucky, West Virginia, Virginia, Tennessee and the Carolinas, while Wilder's studies indicate an undue prevalence in southern Illinois. The disease is prevalent in southern Indiana. In 1912, a survey among the American Indians, made by thirteen officers of the U. S. Public Health Service in thirty states, indicated 22 per cent affected among some 59,000 examined. This survey covered definite sections or schools of nearly all the states in which the Indian population amounts to anything. A recent estimate by the Bureau of Indian Affairs places the incidence at about 10 per cent of the entire 300,000 Indian population.

In the Old World, and to a certain extent in the southern sections of this country, trachoma has been frequently found in children's institutions. In the southern part of the United States, it has been reported both in negro and in white orphan asylums.

CONTAGIOUSNESS AND TRANSMISSIBILITY

A review of the Old World literature, as epitomized in Boldt's book, translated by Parsons in England in 1904, and a review of that little volume of MacCallan's published in England in 1913, make evident the confusion in the older literature. The pathologic condition which we recognize as trachoma and the other forms of transmissible eye infections recognizable since the days of modern bacteriology were not differentiated. Because of this confusion, much of the literature going back to the use of the term "lippitudo" in the time of Hippocrates is misleading, and all older statements need to be evaluated by health authorities, just as it was necessary to evaluate older statistical statements about smallpox during the days when it was not differentiated from measles, or typhoid in the days when it was not differentiated from typhus and malarial fevers.

Only within comparatively recent years may we judge the influence of the various miscellaneous infections and determine approximately how much of that which was transmitted may have been a known recognizable infection, and thus, by exclusion, estimate how much was trachoma.

The fact that at Ellis Island, where in the early days of exclusion they handled several hundred cases of trachoma every year (in 1899, 1900 and 1901) and where they have never been without some trachoma, except perhaps during the late war, no physician, nurse or orderly has seemed to contract the disease, and the further fact that, even in the early days when a number of patients with trachoma reached Ellis Island by long steerage travel from eastern Mediterranean ports, no outbreaks of this dangerous infectious disease occurred in crossing, make one question whether we have not greatly overrated infectiousness and transmissibility for the purpose of getting easy control over each case.

It is true that a report of an outbreak was made by Schereschewsky of the Public Health Service in February, 1907, at Baltimore, where sixty-seven persons who were occupants of a compartment in passage with four trachomatous individuals developed an acute eye disease. In 1910, Clark reported thirty-five cases, all acute, on one vessel arriving at Philadelphia, and twenty-seven on another. If all of these acute eye troubles had been kept under observation until the classic later symptoms of trachoma had developed, there could have been no doubt of the diagnosis. To keep immigrants at quarantine station for a period of years is not practicable.

While I was in the heart of the Ozarks in Springfield, Greene County, Mo. some time in May, 1924, in conference with Dr. Kerr, the work of the traveling clinics dealing with trachoma and the follow-up work was discussed. We could not resist at the time contrasting the prevalence of trachoma and its alleged dangers in this section of Missouri with its apparent lack of danger to house contacts in the coal fields of Pennsylvania, where it was known that a number of trachomatous adults and children had gained residence prior to the enforcement of the exclusion regulation at ports of entry. At this time the need of home environmental studies and health habit studies was stressed, with the need of follow-up work by home health teachers.

In November, 1925, it seemed desirable to review the literature of trachoma rather thoroughly. This study was begun because of contemplated cooperative effort between the National Committee for the Prevention of Blindness and the Committee on Conservation of Vision of the State and Provincial Health Authorities of North America. It was desirable to know the size of the problem, the facts concerning the dangers of the disease and to determine some logical method of attack, if aggressive measures were to be undertaken.

The first plans were for a review of such evidence of transmissibility and contagiousness as was available and then to review such epidemiologic studies as might be matters of record. To our great amazement, we were not able to find in the published literature of trachoma any convincing evidence either of dangerous contagiousness or of the successful transmission of the disease.

What was still more surprising, we were not able to locate in published literature a single well planned and well carried out epidemiologic study of trachoma. Studies of etiology with some alleged finding of causative agents were frequently found in the literature, but as is well known to the medical profession today, all of these alleged causative agents have been completely discredited by later studies.

There are many published reports of surveys of prevalence of trachoma available, and in several instances—notably those of Schereschewsky and Clark—of return surveys after an interval of years, the later survey apparently showing an increase of prevalence of the disease occurring in the two year interval. The surveys recorded, however, fail to review the various factors that might permit the disease to develop, and they fail to evaluate such factors as are elemental in epidemiologic research. Practically all of these published studies contain statements of contagiousness that might well have been copied from the writing of Hippocrates or from any subsequent writer.

Here and there a lone voice occasionally, like Baeck, has protested against the general acceptance of contagiousness and transmissibility. Mutermilch, Cuenod and Gunning questioned parasitic origin in 1893. Notable statements of this sort have been made within recent years by that pioneer clinician with mountain people, Dr. J. A. Stucky of Kentucky, whose views will be referred to later.

In the published transmission experiments, evidence is lacking that these procedures were started from trachoma alone, after miscellaneous, easily recognizable germ life has been ruled out. Nor was the end-result of these transmission experiments satisfactory, in that the resultant could be accepted by clinicians as undoubtedly the pathologic picture of trachoma. The so-called etiologic factor described by Halberstadter and Prowazek, in 1907, and accepted under the name of the "inclusion body," and later, a presumably earlier stage of the same factor, perhaps clusters of cocci described by Lindner, in 1910, as the "initial body," represent negative results in the light of later studies by others.

Even those who anticipate that the disease may be caused by some low grade protozoan or some nonfiltrable vegetable organism have not started their experiments, so far as may be judged from published statements, with an eye known to be clean of recognizable transmissible bacteria.

A transmission experiment, to be acceptable, must certainly start from a definite pathologic condition and end with a definite pathologic condition. The proof should be somewhat parallel to Koch's circuit, in which one starts with a definite virus, produces a disease, and recovers the virus. It might be acceptable to start with a definite, clear trachomatous condition and by experiment reproduce a trachomatous condition without even knowing or recognizing the virus.

Much has been learned along public health lines in recent years by following the work of the research chemists. Probably the applied findings with relation to the usefulness and virtues of vitamins have of themselves been the greatest health contribution during the last decade. The many experiments by McCollum and his co-workers, by Osborn and Mendel, by Sherman, by Mellenby, by Yudkin and Lambert, by Wason, by Wolbach and Howe, and by others, who have readily produced xerophthalmia in animals by feeding experiments, and the published observations of the great human tragedies comparable to experiments described by Blegvad and later by Bloch of the children of Denmark during the early years of the Great War, and by Mori of Japanese children, offer food for thought in relation to trachoma.

The editorial review of Wolbach and Howe's paper in THE JOURNAL, Dec. 26, 1925, concludes with this statement: "In any event, the demonstration that an absence of something in the food may cause active overgrowth and change in the character of body cells is an important episode, with stimulating possibilities for future developments."

ETIOLOGY AND PREVENTION

Much has been proved about xerophthalmia. Histologic studies of Wolbach show epithelial tissue change and overgrowth in many parts of the body, in which xerophthalmia is evident in the eyes of the experimental animal. These epithelial tissue changes are in a measure comparable to those described as pathologic in the lids of trachoma. Yudkin and Lambert pointed out that these changes begin in the upper lid membrane. Do these studies not suggest that there may be room for an hypothesis that the primary fault permitting trachoma to develop may be a food fault? May not the fault be either that essential food or vitamin has been absent seasonally or habitually, or that the essential food element has not been utilized? Does it not suggest, as has been said by Dr. Stucky, that trachoma, like scurvy, beriberi, pellagra and rickets, may be primarily a deficiency disease?

If, for the sake of argument, we assume that the primary fault may be nutritional, additional factors would perhaps account for the continuous irritation of the unhealthy tissue. Every added eye infection passed from individual to individual in the overcrowded home means a certain period of added irritation. The sand grains continuously blown in the eyes of desert people, the dirt from the earth floor of the Indian adobe house or the hogan, or the dirt from the floors of the mountain cabins, and domestic animals, plus the irritant smoke from many of these dwelling places, would all add irritation to the nutritional fault and hasten pathologic changes.

When one reads the literature of this disease carefully, the thought is inescapable that no satisfactory evidence is available to justify statements of dangerous contagiousness or ready transmissibility. Nor, if we consider the food habits of the peoples most affected, can we escape the thought that if this disease is due to a specific virus it in some deliberate way shows a selective affinity for the poor and underfed of the world, not exhibited by any other transmissible virus whose habits are known.

What we need today, then, is first of all to discard as fact much of the published literature with reference to contagiousness, transmissibility and prevalence of trachoma. We need a recasting of all the evidence and a broad-gage epidemiologic research into every possible influence that might permit this disease to develop whether it is due primarily to a food fault or to a specific virus. We need to gather all evidence without bias and to weigh it in the balance for the purpose of determining the real epidemiology of one of the world's great scourges.

On food studies alone, exhaustive inquiry must be made in the homes in which trachoma has developed. We must learn what kinds and amounts of food were consumed seasonally and by each individual habitually over a period of years. We must go back very definitely to a period at least one or two years prior to the time when the first eye symptoms were noted in the first person to be affected in such families.

It would also seem desirable to initiate feeding experiments with some of the larger animals in which it is known xerophthalmia may be produced by proper manipulation of diet and, at some point short of reaching keratomalacia, begin systematic irritation of the upper lid membranes with known irritants at frequent intervals continued over a period of months, to see if a pathologic condition comparable to trachoma may be developed. Irritation might be continued in other animals on similar food experiments, but by adding the known bacteria frequently invading the eye, and by inoculating and reinoculating until long continued irritation is produced from bacteria or their products. Control studies would check against error.

With a widespread distribution of trachoma among peoples not yet educated in public health procedure, an international problem is before the world that is not

alone a challenge for epidemiologic research, but a challenge in health education and administration. If the fault is primarily dietetic, let us learn it and broadcast the remedy. If it is a specific virus, let us get indisputable epidemiologic evidence and base our health activities on facts.

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ABSTRACT OF DISCUSSION

DR. A. T. MCCORMACK, Louisville, Ky.: Trachoma is one of the major activities of the state health department of Kentucky. Dr. Royer's method differs radically from our method of procedure. In Knott County, the campaign begun by Dr. Stucky was carried to its completion in the U. S. Public Health Service hospital under the supervision of Dr. McMullen. In Knott County food never has changed very much. They have always eaten everything they could get and are still doing so. There are comparatively no cases of trachoma in Knott County today. It is entirely possible that this disease may not have been trachoma, but whatever it was, it is not there any more. About 160 blind people are in the county, all of whom became blind before the operations were done, but there has not been a case of blindness since. During the early years in Kentucky there have been certain cases that have remained submerged and have stayed together until large communities are sore-eyed communities. The country stores used to buy their eye drops and distribute them in quantities that took the place of cosmetics and face powders in other sections of the world. As those sections became industrial sections the people were crowded out from these centers of infection. They came into the Blue Grass region and into the city, or went to Ohio, Detroit, western Pennsylvania, Oklahoma and Missouri. The infection has seemed to go along with that wave of migration. There has not been a recurrence of this disease following the clean up. In 97 or 98 per cent of those cases examined for trachoma and hookworm disease, the two conditions have been found to exist simultaneously. The disease has not spread. They have eradicated hookworm disease. The diet of the people has not changed; but we have practically no pellagra now. It may be a deficiency disease, but the deficiency evidently is in some one of the plants or articles of food that the people eat in certain periods, and not in any variety of the food. Another coincidence that we have discovered it that in the large number of operative cases we have found coexisting trachoma and hypertrophied tonsils and adenoids. The greatest piece of public health work that has been done has been the eradication of trachoma under the leadership of Dr. McMullen. On account of the loss of an appropriation by the U. S. Public Health Service, under a so-called wave of economy, it has been necessary to discontinue the hospitals in Kentucky, and we shall shortly again be contributing an increase in the number of trachoma cases. We are now noting an increase. We are confident that we have reduced the disease from 50,000 cases that were originally found in the survey of 1912 by Dr. McMullen to about 4,000 cases. We are equally confident that for the first time since 1912 the cases are increasing in number.

DR. G. S. LUCKETT, Santa Fe, N. M.: The subject of trachoma is very interesting to us in New Mexico because we have a large trachomatous population. The total population of the state is between 360,000 and 380,000. Of this number 20,000 are Indians. It has been demonstrated that in parts of the Navajo country the trachoma infection is as high as 50 per cent, while among the Pueblos it runs between 10 and 19 per cent so we can say that there are, at a minimum, 5,000 infected Indians in New Mexico, and perhaps the number is closer to 10,000. The Pueblo Indians are very different in their habits of life from the Navahos. They live in little villages, in houses built of mud bricks and plaster. The native Spanish-speaking element of our state, which is in part descended from these Indians, lives in the closest contact with them physically. There is no great amount of social intercourse, but there is considerable trading back and fourth. The Indians come to work for the natives, and the natives work in the Indian villages, so that there is constant contact between the trachomatous element and the others. The striking point is that there is no trachoma among the white population, that is, among the population that is non-Indian, either Anglo-Saxon or of Spanish and Indian descent. The general theory among those in the East is that our white population is greatly threatened by trachoma among the Indians. We have not been able to find any evidence that that is the case. Just recently Dr. Grover A. Kempf of the U. S. Public Health Service completed a very thorough study of 500 non-Indian school children in Santa Fe County. This is the county in which we have a number of Indian villages containing a large percentage of trachomatous persons. He was not able to find a single case of trachoma among these 500 children, although some of them were in immediate, daily contact with the Indians. The same kind of surveys have been made to a limited extent in other counties in the state, particularly that one which embraces part of the Navaho reservation, and the same thing has been found true. On the other hand, it is interesting to note that whites who have lived in intimate contact with the Indian for years on his reservation have in some cases developed trachoma. This fact of the sharp demarcation between the population that has trachoma and that that does not, though living in constant physical contact, would make an extremely interesting epidemiologic study.

DR. E. L. SPENCE, Kennett, Mo.: It is rather hard to reconcile a dietetic disease with even a case of mine. A widow with three children married a man who had trachoma. The oldest child was a boy, aged 11. Inside of four months the boy developed trachoma. A meager investigation of the case from an epidemiologic standpoint brought out the fact that the stepfather and the boy used the same wash basin and the same towel. The other two children were girls. They washed their faces in the kitchen and used the same towel, but they did not use the towel the stepfather and son used. They all ate the same food. It is also noted that this man's brother, who lived in northern Arkansas, is also suffering from trachoma. In other families we can trace the disease four generations, but it has been interesting that to a large extent, in our section, trachoma is confined more often to one side of the family; that is, the male side of the family or the female side.

DR. B. FRANKLIN ROYER, New York: I raise the question of a reasonable hypothesis in order to broaden the epidemiologic study of a probable deficiency disease. It is certain that at present we do not have sufficient data to justify making a judicial statement one way or the other. I was much impressed with what Dr. McCormack said concerning trachomatous families that have been cleaned up or moved out, and I gather that with other families moving into the same section, well paid by the developing new industry, they did not get this disease in the same old trachomatous area. There is a lot of gathering of evidence needed from all directions. Since I began these studies and began assembling these facts, the Public Health Service has assigned one of its promising well trained epidemiologists for this sort of research. I am sure he is going to be kept busy for several years in the most intense kind of epidemiologic study.

Prevention of Mosquito Bites.—The following formulas are recommended by the Department of Entomology of the British Museum, Natural History: (1) 50 per cent of alcoholic solution of thymol or of oil of cloves in hydrous wool fat; (2) oil of cassia, 1 part; brown oil of camphor, 2 parts; hydrous wool fat, 4 parts; (3) citronella oil, 1½ parts; kerosene, 1 part; coconut oil, 2 parts; to which is added phenol (carbolic acid) 1 per cent. It is useful to wear two pairs of thin stockings or socks; few mosquitoes will bite through two layers of material, however thin. An application of an alkali, such as weak ammonia or washing soda, will generally reduce the irritating swelling that follows a bite, and thus prevent infective scratching; in serious cases, iodine in glycerin should be applied to the bite and the surrounding skin twice a day.—*Practical Druggist*, June, 1926, p. 34.

REMOVING SPLINTS AND BRACES FROM THE PATIENT *

EMIL S. GEIST, M.D.
MINNEAPOLIS

Our literature is full of directions as to how and when to put the appliance on the patient. It is practically silent about removing it, and yet it requires good judgment to know when to divorce the patient from his splint, be it made of plaster, wood, leather or steel. I often inform my patient that it is easier to tell when to put on a brace than when to take it off.

It is the modern and laudable tendency of orthopedic surgery to get away from the brace. As a result of this tendency, we are in possession today of the various arthrodesing and fusing operations, of the different tendon plasties and joint reconstruction operations—of operations to restore balance. But these operations, which are designed to free the patient from brace thraldom, generally require splints and braces in their after-treatment. I have seen what might have been good operative results spoiled by injudicious removal of braces.

As long as we practice orthopedic surgery, we shall need to use splints. A brace does harm when it does no good. It must therefore be removed at the proper time. What book tells one the proper time has arrived? The literature of orthopedic surgery is for the most part silent as to when and how to remove a given splint. The reason for this is that it is difficult to lay down rules. Nevertheless, our orthopedic textbooks are too lamentably silent as to this phase. Some few of them dismiss the subject with a curt sentence: "The cast or brace should be worn as short a time as possible." It would seem that by now enough statistical material ought to be available to tell at least the average length of time of the cast and splint period in ordinary orthopedic conditions, as, for instance, after operations; in static disturbances of the spine and feet, and in chronic bone and joint infections.

Occasionally and rarely the writer of an orthopedic textbook will mention the subject. Thus, Whitman in discussing his foot brace devotes four and a half pages to the mechanics and application of his brace and two and a half lines to its removal from the patient—and the time and method of the removal of the brace in the treatment of weak-foot is important. The writer of the average orthopedic textbook, however, as a rule practically ignores the matter of brace removal from cover to cover.

The orthopedic surgeon of wide experience has in the course of time no doubt developed his own technic as to time and method of removing a brace. Little of this information has seeped into our literature, and what there is is hard to find. This article is then primarily a plea to the authors of future textbooks on orthopedic surgery to give more attention to the duration of disease and injury, especially as it affects the discontinuance of apparatus.

In the case of fractures, the situation is slightly, but not much, better. It is surprising that recent and excellent textbooks on the subject practically ignore the time element in the healing of fractures, especially as it affects the removal of splints.

* Read before the Section on Orthopedic Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

It is rare, indeed, that in the search for information one comes across a definite, direct instruction such as the following in Sir Robert Jones' "Orthopedic Surgery of Injuries":

> The length of time required for the complete union of fractured bones varies. In one case the process of healing may be completed in eight weeks, but in another case of fracture of the same bone, the time required may be five or six months. There is usually one clinical sign on which reliance can be placed, and that is tenderness at the site of fracture. It may be stated that, as a rule, the presence of tenderness over the callus at the site of fracture is a definite indication that the callus is still soft and will yield on the application of strain.

In these days of industrial and compensation surgery, the foregoing rule, which is based on a subjective sign, may be found wanting. Nevertheless, it is one of the few instructions to be found in fracture textbooks. As a rule, they are silent as to length of time of the healing period in various locations and consequent ablation of supports.

The German textbooks on industrial surgery (Kauffman, Thiem) give some fairly serviceable figures. They are, however, based on old prewar statistics of twenty or thirty years ago. We must therefore welcome the table compiled by my friend Dr. F. E. Clough of Lead, S. D., which, though small, is accurate and definite, and is here reproduced.

Time Sheet for Fractured Legs in 155 Consecutive Cases (Clough)

	Total Cases Treated	Days Lost from Work
Tibia	16	98
Fibula	36	49
Both bones	62	132
Pott's disease	16	69
Internal malleolus	14	44
External malleolus	8	46
Both malleoli	3	116
All cases	155	89
All cases, simple		63
All cases, simple comminuted		97
All cases, compound comminuted		161
Both bones, simple		110
Both bones, simple comminuted		105
Both bones, compound comminuted		164

The syllabus adopted at the conference of the Massachusetts General Hospital (1922), entitled "Outline of Treatment of Fractures," is the only modern, reliable guide that lays stress on this subject.

It is my plea that the authors of future textbooks on fractures compile and publish directions and statistics on this important feature of fracture care.

When we have decided the time to remove the splint from the patient, the question arises, How shall it be done? No doubt most of my orthopedic confrères of large experiences have for a long time practiced the simple suggestion that I here recommend. If so, it apparently is not to be found in print. The rule is simple: The use of a cast, brace or other appliance should not be discontinued abruptly; the patient should first be allowed to go without his apparatus for one hour daily for a week. The time should then be increased by making it two hours for the second week, three hours for the third week and so on. Frequently the process should be slowed down so that the gradual and definite removal of the appliance occupies a few months. This "hourly" method has several advantages: The patient does not feel that treatment is concluded

as he is apt to if the brace is abruptly removed; he reports to the surgeon at stated intervals, at which times untoward symptoms of recurrence or relapse can be recognized. This method has proved especially valuable in those cases in which the discontinuance of the brace throws stress and strain on muscular groups that we are trying to "build up," as in infantile paralysis, weak-foot and scoliosis.

CONCLUSION

Whenever a patient is informed that it is necessary for him to wear an appliance, his first question is, "Doctor, how long must I wear it?" I hope that future textbooks on orthopedic surgery and on fractures will help us to answer this query. The gradual "hourly" method of removal of the splint from the patient is of practical value.

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ABSTRACT OF DISCUSSION

DR. HENRY W. MEYERDING, Rochester, Minn.: The question of when we are to remove splints and braces concerns almost every practitioner of medicine and surgery, more especially, however, those who deal with problems or orthopedic surgery. I do not believe it will ever be possible to lay down any definite set of rules as to when or exactly how long an apparatus is to be worn. The age, the type of fracture, the complications, in fact the patient's bone forming capacity must be all taken into consideration. It would be extremely interesting, however, as brought out by Dr. Geist, to have more detailed reports, especially from industrial surgeons, who deal with a great mass of the fracture work of this country. This material gathered together would give us valuable information as to how long we may expect to continue fixation. I do not have a great many acute fractures to treat. The work that I am concerned with deals more with nonunion and malunion. A study of the results of fractures that come to us indicates a lack of proper and adequate fixation in cases of nonunion. I believe that it is one of the important factors in the causation of nonunion. As to how long we are to keep fixation up following fusion operations or in bone grafting operations, I have a simple way of going at it. I keep fixation on until I feel that the part operated on has sufficient strength to withstand the stress and strain put on a normal bone in that position. In other words, a bone graft in the tibia, femur, humerus or forearm may unite and seem definitely fused into position, but it may not have union across the fragment of the bone fractured. I have seen over and over again excellent surgery with poor end-results because of improper and inadequate postoperative fixation.

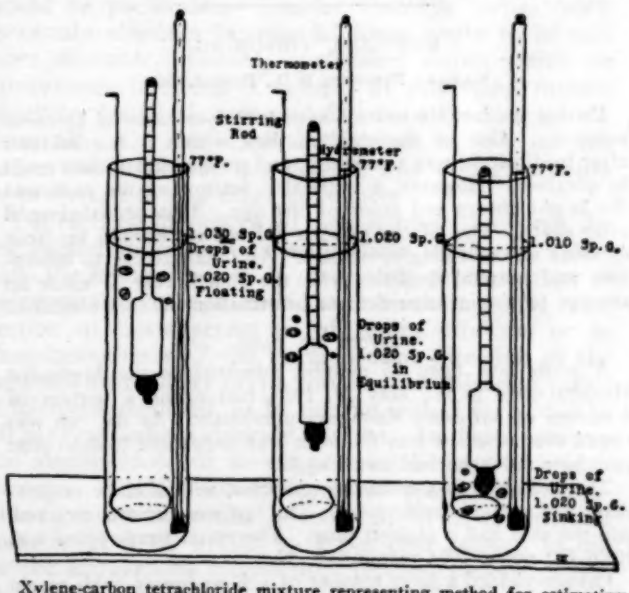
DR. F. J. GAENSLEN, Milwaukee: Dr. Geist makes two specific points: that our textbooks do not give sufficient guidance either as to the proper time for removal of splints in various directions or as to the manner of such removal. I take it that he has worked out his own plan in his work and that he is not coming here for information on these points. He is, however, making a plea that the writers of textbooks and the contributors to orthopedic literature will lay down proper principles covering the deficiency indicated for the guidance of those who are not in constant touch with the work. Let us assume that a child with knee joint tuberculosis has had fixation of a joint for a long period; that so far as clinical symptoms are concerned there is arrest of the disease. How long is splint fixation to continue? There are no directions to be found in the textbooks. Sir Robert Jones in his teachings has often called attention to the fact that it is more difficult to say when a joint is healed than when it is affected by tuberculous disease. No definite time limit for fixation can be set; but, when brace protection is discontinued, the patient requires especially close attention so that the very earliest signs of recurrence of disease may be noted. This should be impressed on both patients and physicians. Part-time protection in this type of case is especially indicated. A patient may be able to get about freely and without danger so long as he is wearing the brace; but if he strains a tuberculous joint in which the disease has only recently become quiescent, serious difficulty may result. The question when to discard fixation in such a case resolves itself into a discussion of signs of recurrence and early recognition of these signs. Among the most important of these are development of deformity or increase of existing deformity. For this reason, careful records of the degree of deformity are necessary for reference and comparison. In the field of fractures, much more definite rules can be laid down. All of us have seen patients with Colles' fractures continuing with splints for from four to six weeks. I believe this is entirely too long. Continuous splint fixation for fourteen days is probably all that is necessary. The patient may be encouraged to use his hand for writing, turning pages or similar work without protection at an early period, while a night splint may be advisable for several weeks longer. In other words, proper judgment must be exercised so that the part be not subjected to dangerous strain or, on the other hand, to prolonged fixation.

Clinical Notes, Suggestions and New Instruments

A SIMPLIFIED METHOD FOR DETERMINATION OF THE SPECIFIC GRAVITY OF A FEW DROPS OF URINE

JOHN KIRKPATRICK, M.D., AND DAVID H. KLING, M.D.,
LOS ANGELES

Estimating the specific gravity of a few drops of urine has always been a difficult problem. This difficulty arises more particularly during ureteral catheterization, when only a few drops of urine can be obtained. By the method described here, the specific gravity of a few drops of urine from each kidney can be determined. It will be found applicable in estimating the specific gravity of small samples of voided urine.



Xylene-carbon tetrachloride mixture representing method for estimating specific gravity of a few drops of urine.

This method for the determination of the specific gravity of urine is made possible by the utilization of a non-water-soluble mixture. We use for this purpose a mixture of a high specific gravity chemical (carbon tetrachloride), and a low one (xylene). It can be prepared quickly and cheaply from materials ordinarily at hand in the laboratory.

Hammerschlag[1] has adapted this principle to determine the specific gravity of blood. But he has used a mixture of

1. Hammerschlag: Ztschr. f. klin. Med. 20: 444, 1892.

chloroform and benzine. We have found this objectionable because of the rapidity with which these two chemicals evaporate, with consequent change in the specific gravity of the mixture. The chemicals that we use evaporate very slowly, and there is relatively little change in the specific gravity of the mixture.

The following is the method. It will be found easy to apply.

In a urometer jar, in the proportion of 1: 3.5, carbon tetrachloride and xylene, respectively, are placed; for example, 10 cc. of the former and 35 cc. of the latter. They are mixed thoroughly by stirring. A useful stirring rod is an ordinary applicator stick. The resultant specific gravity will be 1.020 at 77 F. For each degree change of temperature below this standard, one must add to the urometer reading 0.0005 degree and, vice versa, if above this reading, one must subtract 0.0005 degree. That is, for each 2 degrees change in temperature, the standard urometer scale changes 0.001 degree.

A drop of urine is let fall into this mixture. If the drop sinks to the bottom, it must be higher in specific gravity than the mixture. Therefore, the specific gravity of the mixture must be changed to equilibrium by adding carbon tetrachloride, drop by drop, slowly with adequate stirring, until the drop of urine will have a distinct tendency neither to rise nor to fall. This indicates equilibrium of the mixture. The reading on the urometer scale will be equivalent to the specific gravity of the urine, after necessary correction for temperature difference has been made. If the drop of urine floats, the specific gravity of the mixture may be depressed by the opposite procedure of adding xylene in small amounts, until the drop of urine has a distinct tendency neither to rise nor to fall. Correct results depend entirely on adequate stirring of the mixture and temperature corrections.

The mixture may be used repeatedly. However, it is best to filter off the urine after its specific gravity has been determined.

916 Pacific Mutual Building.

KEROSENE POISONING

ORVILLE BARBOUR, M.D., PEORIA, ILL.

During the last six years I have seen four cases of kerosene poisoning. One of the children died within a few minutes after medical aid was summoned, and no laboratory data could be obtained. However, a noticeable feature of the case was the bright cherry red color of the lips. This persisted until after death. Two of the patients did not get enough kerosene to cause any alarming symptoms. As I had access to laboratory and hospital facilities with the fourth case, I made an attempt to obtain some definite information on this condition.

REPORT OF CASE

A white boy, aged 15 months, admitted to the Methodist Hospital at 4 p. m., May 24, 1926, had drunk a portion of 6 ounces of kerosene, six hours previously. As the cup was tipped over when he was found, it was impossible to determine just how much he had swallowed.

The child was in a comatose condition, with shallow respirations, and a rapid feeble pulse. The lips were of a cherry red, and the skin had a pinkish tinge. The rectal temperature was 101.6 F.; pulse, 160; respiration, 40.

Lavage yielded a large amount of yellow emesis, with casein curds and a pronounced odor of kerosene. An enema was expelled with a large amount of fecal matter and a marked odor of kerosene. As the boy's condition showed no improvement, he was given 7½ grains (0.5 Gm.) of caffeine sodiobenzoate hypodermically and an ounce (30 cc.) of castor oil by mouth, and was placed in a hot wet pack for thirty minutes.

One hour later he was still comatose. His temperature had risen a degree higher, and his pulse rate had increased to 180. He was again placed in a hot wet pack, and kept there for twenty minutes. Following this, his temperature dropped a degree, and he seemed somewhat better. The contemplated blood letting and blood transfusion were postponed, and were later deemed unnecessary. The child's general condition continued to improve, and he was discharged from the hospital forty-eight hours after admittance, apparently feeling as well as ever.

Laboratory examination of the urine, May 24 and 25, was negative. May 26, there was a trace of sugar. The urine spectrum was negative for methemoglobin.

Blood Examinations

	Hemoglobin	Erythrocytes	Leukocytes	Polymorphonuclears	Large Lymphocytes	Small Lymphocytes	Eosinophils	Transitionals
5-24-26, 5 p. m....	58	4,900,000	29,500	81%	0.5%	17%	0.4	0.6
5-25-26, 7 a. m....	58	4,900,000	33,000	80%	0.8%	18%	0.4	0.6
5-26-26, 7 a. m....	58	4,900,000	18,000	71%	3.0%	18%	2.7	3.2

The blood spectrum showed methemoglobin.

COMMENT

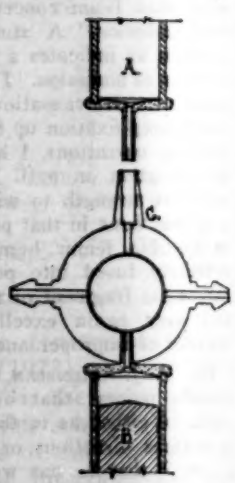
The clinical and blood picture of this condition is similar to that produced by illuminating gas. In severe cases, blood letting and blood transfusion would seem to be indicated.

627 Jefferson Building.

A NEW METHOD OF BLOOD TRANSFUSION*

JAMES J. DONAHUE, M.D., ST. LOUIS

A minor alteration in the Unger blood transfusion apparatus now in general use makes possible a radical change in the method of operation, having important advantages. This consists merely in discarding the rubber tubing and adapter that are attached to the nipple at the saline opening. In place of this nipple, a female adapter made from the hilt of a record cannula is brazed strongly to the machine in line with the port *C*, as shown in the accompanying illustration. This new attachment receives the tip of a record syringe.



New apparatus for transfusion: *A*, record syringe; *B*, original record syringe; *C*, new attachment for receiving record syringe.

The change from the Unger method of operation is as follows: No saline solution is employed during the transfusion, and whole blood only is used. A record syringe, *A*, operates similarly to the original record syringe, *B*, of the Unger method and works in opposite phase to it. While *A* is filled from the donor, *B* discharges into the recipient, and the two operations are simultaneous. At their completion, the valve is turned and the operation is reversed. Syringe *B* is then filled from the donor, while syringe *A* is discharged into the recipient.

Except during the instant required to turn the valve and reverse the stroke, a constant flow of whole undiluted blood passes from the donor to the recipient. Thus, there is no stagnation in the stream during the reversal of the flow and no opportunity for clotting. The transfusion time obviously may be reduced by one half, if desired. The blood remains outside the natural circulation about twelve or fourteen seconds when 20 cc. syringes are used, and six or eight seconds with 10 cc. syringes. The latter are used if it is desired to transfuse slowly.

This method has been found entirely satisfactory, and it is believed to come closer than any other to the ideal of a rapid, harmless transfusion of whole blood.

600 South Kingshighway.

* From the Department of Internal Medicine, Washington University School of Medicine, and Barnes Hospital.

Special Article

THE TECHNIC OF MEDICATION

A SERIES OF ARTICLES ON THE METHODS OF PRESCRIBING AND PREPARING, THE INDICATIONS FOR, AND THE USES OF VARIOUS MEDICAMENTS *

BERNARD FANTUS, M.D.
Associate Clinical Professor of Medicine, Rush Medical College
CHICAGO

(Continued from page 413)

INDICATIONS FOR INTRAVENOUS THERAPY

4. *Parenteral Alterative* [142] *Therapy.*—This finds in intravenous introduction the highest degree of its development. Protein bodies that would be digested into amino acids on peroral administration exert an entirely different effect when introduced parenterally. It is not always necessary that the agent be introduced intravenously; intramuscular injection of milk, for instance, produces similar results and may sometimes be preferable. It must be admitted, however, that intravenous injection of proteins and certain other bodies yields a purer omnicellular alterative action than any local injection possibly can, complicated as such always must be by local irritative phenomena which in themselves may become quite distressful. The chief indication for such general alterative therapy is in chronic diseases that have not responded to organotropic remedies, and in acute infections in which specific therapy is not available. Just as in chronic localized affections, as of the skin, appropriate irritation may lead to such alteration in local nutrition as to expedite healing, so in certain chronic generalized or even localized disturbances that cannot be reached by local irritation an irritation of the cells in general, to which the sensitized disease cells respond most readily, may result in a healing tendency. Furthermore, as in skin disease, a soothing remedy that had previously failed may succeed after irritation, so a remedy that was previously not successful may expedite the final cure after general protoplasm stimulation, as by salicylates in a chronic arthritis.

The antibacterial action of this form of therapy is chiefly to be explained by the fact that the foreign protein is rendered innocuous to the system by appealing to the same mechanism that deals with the proteins of bacterial infection in the development of immunity. The term "nonspecific immunization" has therefore been applied to it.

The general indications given for parenteral alterative therapy must not be interpreted too broadly, for these agents may harm as well as help. Especially must we visualize the fact that we are dealing here with a whip to which the diseased organism must be capable of responding, if therapeutic results are to be obtained. In cachetic patients for instance, such response may be impossible. As excessive dosage may cause paralysis instead of stimulation of nutritive functions, collapse instead of fever, it is important to adjust the dosage so as to use the minimal effective one ("Schwellenreiztherapie," Zimmer), which may vary greatly in different cases.

The effects of parenteral alterative therapy are in general diphasic: rise in temperature followed by antipyretic action; decrease in the number of leukocytes, followed by leukocytosis; aggravation of local inflammatory phenomena followed by amelioration; diminution followed by increase in immunity; increased clotting power of the blood, which may be preceded by a decrease; and a temporary lessening of allergy in such conditions as asthma or eczema may be secured by appropriate dosage, while excessive dosage may increase it. These facts will serve to suggest at once the wide field of possible application, as well as the danger from wrongly applied or improperly controlled treatment of this kind.

To avoid doing harm, the effect of each injection should be studied by pulse and temperature observations and urine as well as blood examinations before and after the injection. and another injection should not be administered until the effect of the previous one has subsided. It is an error not to combine with this other forms of treatment likely to be useful. Thus salicylates or neocinchophen, which may have failed previously, may succeed when used in connection with proteotherapy.

The selection among the almost innumerable agents that have been proposed for this purpose might be made according to certain principles. First among these should be constancy in chemical and physical qualities. This cannot be secured with peptone, animal serum or bacterial vaccine. A simple and pure protein would be preferable. Simpler chemical bodies, such as certain elements in colloidal form, ought to be still more desirable. Indeed, in distilled water, which on intravenous injection is capable of producing protein shock by hemolysis, we probably have the simplest of them all. Of course, when a more or less specific antiserum or vaccine is available, this would naturally be preferred to any other substance.

Differences in degree of action must, however, be recognized in connection with these measures. Perhaps the mildest degree of nonspecific proteotherapy is being carried on in so-called autoserotherapy, the reinjection of blood serum or of serous effusion, or in "autohemotherapy," the intramuscular injection of the patient's own blood or its intravenous injection, after it has been modified, as by mixing with 5 cc. of a 5 to 10 per cent sodium chloride solution. In these instances the altered blood or serum proteins become "foreign" protein. A more severe degree of reaction is obtainable from intramuscular injection of 10 cc. of sterilized milk or of 1 cc. of 0.1 to 1 per cent sulphur in oil, or the intravenous injection of typhoid vaccine, which it seems is required to obtain definite results in gonorrheal or rheumatic conditions. The extreme degree of parenteral alterative therapy is secured from active infection with such parasites as those of malaria or relapsing fever which has secured a certain amount of success in early general paralysis and in tabes. Here, as for other purposes, intramuscular administration, as it is less dangerous, even though more painful, should be preferred to intravenous injection whenever otherwise the same effects can be secured.

5. *When Other Methods Do Not Give Desired Action.*—Intravenous administration is indicated for the introduction of medicaments when the desired

* This is the thirty-third of a series of articles on "The Technic of Medication." When completed, the articles will be assembled in book form.

142. This term, it seems, might usefully be resurrected from the partial oblivion into which it has sunk to designate the change we aim to produce in the reactivity of the cells in general that has of late been discussed under such titles as "plasma activation," "ergotropic" and "nonspecific protein therapy." For this and a number of other concepts developed here, the author is indebted to Reinhard von den Velden (Handbuch der praktischen Therapie, Leipzig, Barth, 1926), who calls it "Umstimmungs Therapie."

action can be obtained only in this manner. The intravenous administration of epinephrine is a good example. This substance affects blood pressure markedly only when given intravenously. It is then the strongest analeptic we possess. So powerful, indeed, is its effect when thus given that it is dangerous unless administered in considerable dilution and very slowly. Thus, Ulrich and Rypins [143] experienced so alarming a reaction after the injection of 0.33 cc. of 1:1,000 epinephrine chloride in 5 cc. of warm physiologic sodium chloride solution that they consider this dose as probably the maximum that can be tolerated in safety by human subjects. As epinephrine is rapidly destroyed in the circulation, it is really a mistake to speak of maximum dose. We should rather speak of a safe rate of injection. Straube [144] suggests its slow but continuous intravenous infusion, a method which Friedman [145] described more in detail, after seven years of favorable experience with it. He adds 1 cc. of 1:1,000 solution of epinephrine to 750 cc. of physiologic sodium chloride solution and allows from 20 to 200 drops a minute to flow into the vein. Such injection may be continued for hours, even days. In this manner sudden embarrassment of weakened circulation is avoided. The author noticed, however, that, in extreme cases, hypostatic pneumonia developed with remarkable frequency.

As previously noted under osmotherapy, hypertonic calcium infusion is endowed with a greater degree of hemostatic action than any other osmotherapeutic agent. It is generally employed for intravenous injection in inaccessible hemorrhage, in the form of a 10 per cent sterile solution of calcium chloride, of which from 5 to 10 cc. is injected, at about 103 F., two or three times daily. It is important that not a drop of the solution escape outside the vein. Should this mishap occur, it causes severe pain and may produce necrosis. Because of this danger, Seelig [146] advises the use of 50 cc. of 1 per cent solution, which does not produce necrosis even when it escapes outside the vein, rather than 5 cc. of a 10 per cent solution. These injections must be given very slowly, the slower the better, for the intravenous use of calcium chloride carries with it danger of producing collapse. Depression of blood pressure produced by the intravenous use of calcium, which was noted among others in animal experiments by Fleisher and Loeb,[147] may indeed be of considerable importance in the hemostatic action of these injections. Thus, Heubner and Rona report that "not a drop of blood could be obtained from incisions into the ear and but little on venesection, evidently due to low arterial pressure."

A special advantage from hypertonic calcium infusion is reported in connection with various forms of tuberculosis. Not only are such injections considered especially indicated in pulmonary hemorrhage, [148] but numerous reports indicate that it is of value in combating some of the other manifestations of tuberculosis when given every day or every other day [149]—the night sweats,[150] the vomiting, brought on by coughing,[151] and the diarrhea of intestinal tuberculosis.[152] However, the results are not constant and the mode of action is not clear. Calcium can hardly be considered to possess special etiotropic powers against tubercle bacilli. These injections seem to act chiefly in a symptomatic and perhaps restorative manner, possibly also by inducing "hemoclastic shock," when from 2 to 4 cc. of as strong as 50 per cent solution is injected, as advocated by Pellé.[153] This reaction is accomplished by a sensation as if hot water were being poured over the body. It lasts only a minute.

In view of the marked effect of calcium on the heart, which in some respects is like that of digitalis, Gustav Singer [154] advises the use of calcium preceding or together with digitalis administration. He believes that calcium sensitizes the heart to digitalis action so that the latter may act when it previously failed. Another indication for this combined therapy the author finds in cardiac decompensation accompanying hypertension, as calcium has a distinct tendency to slow the pulse and lower blood pressure. When giving a single dose preceding digitalis administration, the author employs 5 cc. of 10 per cent calcium chloride solution, or else he gives divided doses of 0.1 Gm. of calcium chloride daily or every other day. In serious cases he does not hesitate to combine the digitalis with calcium. He finds that the calcium improvement of the heart action is much more transient than that of digitalis. According to this experience, the warning sounded on the basis of an experiment by Loewi [155] against combination of calcium with digitalis is groundless, provided a sufficiently small dosage is used.

Theoretically it would seem that, if systemic antisepsis, either bacteriostatic or disinfectant action, could be secured, intravenous injection would be the method of choice. That this is not necessarily the case is shown by the fact that quinine and mercury, our oldest systemic antiseptics, have established their value in malaria and in syphilis, respectively, on peroral administration. Though arsphenamine is given intravenously by choice, the reason for this seems to be its local irritant action rather than essential condition for success. Of late, mercurochrome-220 soluble has been advocated for intravenous administration as a systemic antiseptic by H. H. Young [156] and his collaborators. In analyzing the reports of 255 cases, in some of which brilliant results have been obtained, Young admits, quoting Roeder and Judd, that mercurochrome "requires assistance on the part of the body economy" and that, if it "does not destroy or retard the growth and activity of the dominating infecting organism, it stirs up a resistance or a reaction which in turn destroys the bacteria." Obviously, parenteral alterative action plays a rôle in the results.

6. When Speed is Essential.—When medicaments cannot be introduced with sufficient rapidity by other channels, intravenous injection offers a most important, at times life-saving, avenue into the system. To save us from applying this principle in too broadcast a manner, it is necessary to bear in mind its essential limitations. It is most unlikely that we can increase to an important extent the concentration in the blood of

143. Ulrich, H. L., and Rypins, Harold: J. Pharmacol. & Exper. Therap. **19**: 215 (April) 1922.
144. Straube, W.: München. med. Wchnschr. **58**: 93 (June 27) 1911.
145. Friedman, M.: Deutsch. Ztschr. f. Chir., 1919, p. 352.
146. Seelig, M. G.: Localized Gangrene Following the Hypodermic Administration of Calcium Chloride, J. A. M. A. **84**: 1413 (May 9) 1925.
147. Fleisher, M. S., and Loeb, Leo: J. Exper. Med. **11**: 642, 1909.
148. Neumann, W.: München. med. Wchnschr. **67**: 762 (Nov. 5) 1920.
149. Maendl, H.: Ztschr. f. Tuberk. **35**: 184 (Nov.) 1921.
150. Pellé, A.: Bull. et mém. Soc. méd. d. hôp. de Paris **46**: 1346 (Oct. 20) 1922.
151. Merklen, P., and Dubois-Roquebert: Bull. et mém. Soc. méd. d. hôp. de Paris **46**: 349 (Feb. 24) 1922.
152. Rist, Ameuille and Ravina: Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 1016 (July 1) 1921. Beasley, T. J.: Indianapolis M. J., January, 1915; Calcium Chloride in Intestinal Tuberculosis, J. A. M. A. **72**: 550 (Aug. 16) 1919. Ringer, P. H., and Miner, C. L.: Am. Rev. Tubere. **5**: 876 (Jan.) 1922.
153. Pellé, A.: Bull. et mém. Soc. méd. d. hôp. de Paris **46**: 264 (Feb. 10) 1922.
154. Singer, Gustav: Therap. Halbmonatsh. **24**, Dec. 15, 1921.
155. Loewi, O.: München. med. Wchnschr., 1917, p. 31.
156. Young, H. H.: The Treatment of Infections, General, Local and Urinary, with the Intravenous Injection of Mercurochrome, Surg. Gynec. Obst. **40**: 97 (Jan.) 1925.

diffusible and absorbable bodies, such as the iodides, arsenic, the salicylates or quinine,[157] when we give these intravenously, than when we administer them perorally, provided the stomach is retentive. When, however, vomiting or purging renders the primae viae unavailable, or circulatory collapse makes sufficiently rapid absorption doubtful, intravenous administration may have to be resorted to. Thus, in the case of the salicylates, relief of rheumatism can practically always be satisfactorily obtained by giving the medicine perorally; but, should a patient suffering from this disease be unable to obtain the benefit of salicylization by the oral route, as when the stomach is absolutely intolerant of it, intravenous administration is decidedly indicated. Mendel [158] offers the following formula for this purpose:

℞ Sodium salicylate ..... 8.0 Gm.
Caffeine sodium salicylate..... 2.5 Gm.
Sterilized water.....to make 50.0 cc.
Inject 2 Gm. (one fourth of this solution) every twelve hours.

In the pernicious form of malaria, quinine should be administered intravenously, though it must not be relied on to exterminate the parasites from the patient's system and must be supplemented by a peroral course of quinine. Strong solutions, from 5 to 10 per cent, of the dihydrochloride or the hydrobromide in physiologic sodium chloride solution (0.6 per cent) may be given in quantities of 5 cc., provided they are administered slowly enough; for such injections may be followed by disappearance of the pulse for a few seconds and alarming lowering of blood pressure. The more dilute the solution and the slower the injection, the safer. Brahmachari [159] advocates infusion of 1:300 solution in physiologic sodium chloride solution given at a rate of 10 cc. per minute. Thus, the administration of 0.65 Gm. woud require 200 cc. of solution. If collapse should occur during quinine infusion, epinephrine or pituitary, and possibly tight bandaging of the extremities, may be of service.

Specific antiserums may have to be given intravenously, either because of the presence of a malignant form of the disease, as in laryngeal diphtheria, or because the antiserum is too feeble in its action when given by other channels, as pneumonia or streptococcus antiserum. Though antimeningococcus serum is best given by subthecal injection, combination of this with vein infusion seems to improve the results. In the treatment of tetanus, the antiserum should be administered intravenously as well as subthecally.

Intravenous administration may be demanded by so great an enfeeblement of the circulation that absorption might not occur readily enough, even when the drug is given hypodermically or intramuscularly. It is, for instance, in such conditions that the using of digitalis bodies, as strophanthin, intravenously may be life-saving.

7. To Avoid Ill Effects of Other Forms of Injection.—Destructive or irritant action of the medicament may indicate intravenous administration, as in case of arsphenamine or neo-arsphenamine. It is a curious fact, explained by immediate dilution with the blood stream, that many substances which give rise to pain and local injury when injected subcutaneously or intramuscularly may be introduced intravenously without such ill effects. For the same reason, antimony and potassium tartrate, which seems to be a specific remedy in leishmaniasis and bilharziasis, must be given intravenously. In the emergencies of acidosis, when alkali cannot be given by mouth or absorbed rapidly enough from rectal administration, vein infusion of 3 per cent sodium bicarbonate solution is indicated, as alkali is liable to produce necrosis on subcutaneous injection.

(To be continued)

157. Osborne, E. D.: Contributions to the Pharmacology and Therapeutics of Iodides, J. A. M. A. **79**: 615 (Aug. 17) 1922.
158. Mendel: Sem. Méd., April 20, 1904.
159. Brahmachari, U. N.: Calcutta M. J., February, 1924.

New and Nonofficial Remedies

John Howland—An Appreciation

The following has been unanimously adopted by the members of the Council on Pharmacy and Chemistry.

W. A. PUCKNER, Secretary.

By the death of John Howland, the Council on Pharmacy and Chemistry of the American Medical Association has sustained a great loss; for he was a member whose devoted services were much valued and whose contributions to the scientific progress of medicine have been outstanding. In the deliberations of the Council he was careful to give heed to the interests of all concerned, but constantly with the thought that the needs of little children were primary. He read widely; and when he spoke, he did so with a knowledge of the facts. His opinion was forcefully presented, and directed to the main point, discarding unessential considerations and observations. His life was broad, covering, first, the care of the sick; secondly, investigations into the body processes, particularly as they were related to the feeding of the child; thirdly, the teaching of his specialty to young men whom he inspired with the highest ideals. The members of the Council on Pharmacy and Chemistry of the American Medical Association mourn the loss of their colleague, and point to his services as an inspiration for all.

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

IVYOL.—Poison Ivy Extract-Mulford.—A solution in olive oil of an irritant or vesicant oil extracted from the fresh leaves of poison ivy (*Rhus toxicodendron*).

Actions and Uses.—Ivyol is used to relieve the symptoms of the dermatitis produced through contact with poison ivy.

Dosage.—In cases of average susceptibility, 0.7 cc. at daily intervals for four doses or until relieved. In cases of unusual susceptibility, from 0.2 to 0.35 cc., increased or not as indicated.

Manufactured by H. K. Mulford Company, Philadelphia. U. S. patent 1,559,340 (Oct. 27, 1925; expires, 1942). U. S. trademark applied for.

Hypo Units Ivyol: Collapsible syringe containers, each containing 0.7 cc. of ivyol.

The fresh leaves of *Rhus toxicodendron* are extracted with purified petroleum benzin. The resulting extract is filtered through paper and decolorized by agitation with fullers' earth. The decolorized extract is concentrated in vacuo to one-tenth its original volume; the concentrated extract is allowed to evaporate spontaneously to dryness; and the residue dissolved in sterile olive oil in the proportion of one part of the extract to 1,000 parts of oil, and 0.2 per cent camphor added as a preservative.

PITUITARY EXTRACT-LEDERLE 20 UNITS.—A slightly acid aqueous solution containing the water-soluble principle or principles of the fresh posterior lobe of the pituitary body of cattle, free from preservative. It is standardized by the method of the U. S. Pharmacopeia to have twice the strength of solution of pituitary-U. S. P. X.

Actions and Uses.—See Pituitary Gland, New and Nonofficial Remedies, 1926, p. 281.

Dosage.—See Solution of Pituitary, New and Nonofficial Remedies, 1926, p. 283.

Manufactured by the Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Ampules Pituitary Extract-Lederle, 20 Units, 1 cc.

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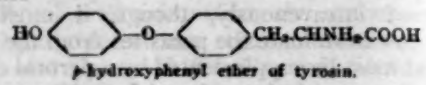
SATURDAY, AUGUST 14, 1926

THE CONSTITUTION OF THYROXIN

Iodine was discovered as a normal component of the thyroid gland by Baumann in 1895. It was not long before the physiologic function of this structure was properly conceived to depend on its iodine-bearing components; and they were also held responsible for pharmacologic effects that various preparations of the glands could induce. Compounds isolated from the gland but not containing iodine have not been shown to have a physiologic activity similar to that of desiccated thyroid. In 1919, Kendall[1] of the Mayo Foundation announced, as the result of a long and painstaking investigation, the successful isolation from the thyroid gland of a crystalline substance containing 65 per cent of iodine, which he named "thyroxin," and which has been proved by numerous clinical investigations[2] to be the substance, or at least one of the most important substances, through which the thyroid gland controls the metabolic rate. Kendall's achievement has been accorded widespread recognition.

The possibility of employing thyroxin itself instead of the desiccated glands or other crude products has marked a decided therapeutic advance. Dosage could be made more accurate; intravenous use became feasible whenever this procedure seemed likely to be an advantage to the patient. As in the case of the somewhat analogous hormone epinephrine, the next step to be desired was the synthetic production of the potent substance. This has not yet been accomplished; but the possibility seems measurably nearer than it did a few months ago. Kendall believed the empiric formula of thyroxin to be $C_{11}H_{10}O_3NI_3$ and assumed its structural formula to be that of *3,5,6-trihydro-4,5,6*-tri-iodo-*2*-oxy-*3*-indolpropionic acid.[3] This conclusion has lately been challenged by Harington[4] of the Department of Pathological Chemistry, University College Hospital Medical School, London. The British biochemist, benefiting by the pioneer labors of Kendall, has succeeded in greatly improving the method of isolation. Kendall had secured 33 Gm. of thyroxin from three tons of the fresh glands—a yield of about 0.001 per cent. It is now possible to increase the yield to as much as 0.027 per cent, or about 0.12 per cent of the fresh gland.

The renewed study of the product thus rendered more readily available has led Harington to the conclusion that the correct empiric formula of thyroxin is $C_{15}H_{11}O_4NI_4$. On this basis the earlier assumptions of its chemical structure are no longer tenable. Through a remarkably incisive investigation, Harington has made it highly probable that thyroxin is a tetraiodo-substituted derivative of the *p*-hydroxyphenyl ether of tyrosin:



p-hydroxyphenyl ether of tyrosin.

The orientation of the iodine atoms in thyroxin remains to be finally determined, but experiments, which are as yet incomplete, indicate that the iodine atoms probably occupy the 3, 5, 3', 5' positions. This is the record of another great achievement in chemistry related to medicine. The day of making synthetic thyroxin on a practical scale can no longer be far away.

1. Kendall, E. C.: Isolation of the Iodine Compound Which Occurs in the Thyroid, J. Biol. Chem. **39**: 125 (Aug.) 1919.
2. Boothby, W. M., and Sandiford, Irene: Physiol. Rev. **4**: 69 (Jan.) 1924.
3. Kendall, E. C.: Glandular Therapy, Chicago, American Medical Association, 1925, p. 17.
4. Harington, C. R.: Chemistry of Thyroxin, I, Isolation of Thyroxin from the Thyroid Gland, Biochem. J. **20**: 293, 1926.

THE ORIGIN AND FATE OF UROBILIN

Last year, Wallace and Diamond[1] of the New York University Medical College advocated the use of the urobilinogen test as a routine laboratory measure in all urine examinations. They believe that in icterus or latent icterus, in hepatic disorders, in the anemias, in malaria, in infections, in malignant disease and in intoxications, it will supply an important adjuvant in the routine diagnosis, and will often aid in clearing up intricate and obscure clinical conditions. It is argued that the alleged constant presence of urobilogen in catarrhal jaundice, and its total absence in mechanical icterus, such as is encountered in carcinoma of the head of the pancreas and of the biliary tract, forms a distinguishing diagnostic feature between this benign form of jaundice and those due to malignant causes. It has already been pointed out in THE JOURNAL,[2] particularly on the basis of the researches of a group of workers[3] at the Mayo Clinic, that there are definite limitations to the use of functional tests in the study

1. Wallace, G. B., and Diamond, J. S.: The Significance of Urobilinogen in the Urine as a Test for Liver Function, Arch. Int. Med. **35**: 698 (June) 1925.
2. Liver Injury from Biliary Stasis, editorial, J. A. M. A. **87**: 415 (Aug. 7) 1926.
3. Greene, C. H.; Snell, A. M., and Walters, Waltman: Diseases of the Liver, I, A Survey of Tests for Hepatic Function, Arch. Int. Med. **36**: 248 (Aug.) 1925. Snell, A. M.; Greene, C. H., and Rowntree, L. G.: Diseases of the Liver, II, A Comparative Study of Certain Tests for Hepatic Function in Experimental Obstructive Jaundice, ibid, p. 273. Greene, C. H.; McVicar, C. S.; Rowntree, L. G., and Walters, Waltman: Diseases of the Liver, III, A Comparative Study of Certain Tests for Hepatic Function in Patients with Obstructive Jaundice, ibid. **36**: 418 (Sept.) 1925. Greene, C. H.; McVicar, C. S.; Walters, Waltman; and Rowntree, L. G. Diseases of the Liver, IV, Functional Tests in Cases of Carcinoma of the Liver and Biliary Tract, ibid. **36**: 542 (Oct.) 1925.

of hepatic disturbances. In any event, the scientific background or basis for the proposed use of any supposedly specific reaction deserves to be clearly understood.

Wallace and Diamond urge that the usefulness of the urobilogen test, as an evidence of liver disturbance and as an aid in the clinical differentiation between various types of icterus, depends entirely on the enterogenous origin of urobilogen. The belief that urobilogen may be formed in the kidney, through a reduction occurring in that organ, appears to have been definitely disproved. Most investigators are agreed that urobilin or urobilinogen is formed in the intestine by a bacterial reduction of the bilirubin that enters it. Only certain micro-organisms are capable of effecting this change. A few students of the subject have maintained, on the contrary, that there may be an hepatic origin also for urobilin; they assume that injury to the liver cells brings about a perversion of pigment metabolism, in consequence of which urobilin is formed. The experiments of McMaster and Elman [4] at the Rockefeller Institute for Medical Research have demonstrated clearly that complete bile deprivation, by intubation of the common duct with collection of the total bile in such a way as to maintain sterility, is followed by the total disappearance of urobilin from the excreta, not only in the normal animal but even after the liver is injured, the bile ducts occluded, or blood destroyed. These observations are not in accord with the experiments of many previous workers, but the latter have employed the open bile fistula methods and dealt necessarily with infected biliary tracts.

Normally the urobilin, formed in the intestine by the bacterial reduction of bilirubin, is absorbed and removed from the blood of the liver. When this organ has been injured the pigment appears in the urine, owing to failure of the hepatic tissue to prevent the passage of urobilin into the general circulation. The latest studies at the Rockefeller Institute [5] explain some of the apparent exceptions to the enterogenic origin of urobilin by the demonstration that infection of a previously sterile biliary tract with fecal bacteria leads to the formation of urobilin from the bilirubin of the bile as it flows through the ducts. No bilirubinuria occurs, however, unless temporary biliary obstruction is produced, or the liver parenchyma injured. Then urobilinuria develops, despite the fact that no bile is reaching the intestine and, by corollary, no urobilin being formed there. There are indications of a possible active absorption of urobilin from the normal gallbladder; and there can be no doubt, we are told, that the pigment is absorbed from within the bile ducts. In the eyes of McMaster and Elman, however, there is no evidence that urobilin is ever formed through the action of liver parenchyma. The upshot of these experiments, which seem to harmonize all assumed conflicts of view, is that urobilin appears only when the bilirubin of the bile is subjected to reduction by certain bacteria. Normally, this takes place in the intestine; but it may also occur in a biliary tract contaminated with the appropriate organisms. Urobilin in the urine depends, according to McMaster and Elman, first, on the absorption of the substance from these situations, and, secondly, on the failure of the liver to remove the pigment from the blood.

4. McMaster, P. D., and Elman, R.: Studies on Urobilin Physiology and Pathology, J. Exper. Med. **41**: 503, 513 (April), 719 (June); **42**: 99 (July), 619 (Nov.) 1925.

5. McMaster, P. D., and Elman, R.: Studies on Urobilin Physiology and Pathology, VI, The Relation of Biliary Infections to the Genesis and Excretion of Urobilin, J. Exper. Med. **43**: 753 (June) 1926.

ADJUSTMENT OF THE BODY TO HEMORRHAGE

The response of the body to extensive hemorrhage is an indication of the protective mechanisms that are at its disposal and the way in which they may be adapted to its use in such emergencies. Loss of blood is not to be identified simply with depletion of fluid; otherwise it could be readily replaced by ingestion of water. The plasma and cells of the blood have special chemical components that characterize them. It has been stated recently that the inorganic composition of plasma differs so widely from that of corpuscles that analyses of whole blood without reference to cell composition and the relative proportion of cells and serum are of little significance.

After severe hemorrhage, as Kerr [1] has pointed out, the organism employs every possible means to secure normal nutrition of the tissues by restoring blood volume. The dependence of a normal blood flow on the restoration of blood volume has been shown by Gesell, Capp and Foote.[2] That the inflow of tissue fluids is an important factor in restoring blood volume after hemorrhage has long been recognized. In an investigation of the changes that take place in the chemical composition of the blood after hemorrhage, it becomes necessary therefore to learn something of the nature of the tissue fluids, for they are at the disposal of the depleted blood. Furthermore, Kerr adds, among the factors concerned in the control of the normal composition and volume of the plasma may be mentioned the activity of the kidney in governing to a great extent plasma volume as well as its content of salts. Other factors of great importance are the permeability of the capillaries, and the passage of fluids and ions through their walls. Changes in blood pressure, in osmotic pressure and in the protein concentration of the plasma and lymph may influence these factors in various ways. It is further pointed out that if lymph, intracellular fluids and fluid absorbed from the gastro-intestinal tract differ appreciably from

1. Kerr, S. E.: Studies on the Inorganic Composition of Blood, I, The Effect of Hemorrhage on the Inorganic Composition of Serum and Corpuscles, J. Biol. Chem. **67**: 689 (March) 1926.

2. Gesell, R.; Capp, C. S., and Foote, F.: Am. J. Physiol. **63**: 1 (Dec.) 1922.

one another and from plasma in composition, it should be possible by investigating what changes occur in the blood after hemorrhage to determine the nature of the diluting fluids and their origin.

The cells of the body are characterized by a comparative richness in potassium; in the fluids, on the other hand, sodium is relatively more abundant. Hence, as Kerr argues, if the restoration of blood volume is accomplished only by absorption of water from the gastro-intestinal tract, there should result a decrease in all the inorganic components and protein of the serum, assuming that this liquid would have a low salt content. Dilution by lymph only should result in a decrease in serum potassium and possibly protein. Intracellular fluid only should produce a decrease in sodium and chloride, and an increased concentration of potassium and magnesium. It is obvious that both lymph and fluid from the gastro-intestinal tract aid in restoring blood volume, and the question is merely whether intracellular fluids are actually drawn on. Kerr's investigation showed that repeated severe hemorrhage produces a greater fall of sodium and chloride of serum, and an increase in the inorganic phosphate. No changes in the potassium, calcium or magnesium of serum were observed. A large increase in the potassium concentration of the corpuscles occurred. One cannot well avoid the conclusion, therefore, that there is a restorative inflow of intracellular fluids into the blood stream when the organism labors under the stress of a severe loss of its circulating medium. This information ought to point the way to more effective methods of treatment.

Current Comment

MEDICAL SERVICE IN THE WEST INDIES

In the Windward Islands Medical Service, involving Grenada, St. Lucia and St. Vincent, salaries vary for medical officers from 315 to 420 British pounds, with living expenses in certain cases. There are twenty-five such medical appointments. The medical officers have been dissatisfied, owing to the total inadequacy of the pay and the imposition of a fee table officially prescribed for private work; the absence of any recognized system of promotion or opportunities for leave or study, and the imposition of additional duties without additional compensation. A special officer from England visited the West Indies and made specific recommendations for improvement of the service to some extent. The governor of the islands, however, appointed his own committee to draw up a report and refused to acquiesce to the original proposal. A committee of the British Medical Association, considering the entire matter, recommended strongly that British physicians do not accept these appointments until the rights of the physicians in these cases are properly recognized. The report of that committee was approved, June 30, 1923, since which time the islands have had difficulty in securing qualified medical officers. Dr. Alfred Cox, secretary of the British Medical Association, writes that the governor has put into effect an ordinance which enables the local administration to employ physicians not qualified in the United Kingdom. This has been done with a view to securing recruits from the United States and from Canada. Dr. Cox writes further:

> It is true that we have seriously impeded the supply of recruits from this country, and that generally speaking means that a colonial administration begins to give considerable weight to our representations. This is not the case, however, where some other source of supply can be tapped, and it would seem that the Windward Islands under the medical ordinance I have mentioned have been able to carry on their medical service after a fashion satisfactory to the local administration without our help. Now, it seems to me pretty clear that if a medical post is not fit for a decently qualified practitioner from this country it can hardly be fit for a similarly qualified member of the American Medical Association, and if you have any means of drawing the attention of the profession in the States to this matter you would be doing a service not only to us but to your own members and to the members of the public in the Windward Islands.

GRADUATE MEDICAL WORK IN NEW YORK

In a pamphlet recently received, the opportunities for clinical study in postgraduate schools and hospitals of New York City have been set forth in elaborate detail. This pamphlet, prepared and issued by the Committee on Medical Education of the New York Academy of Medicine, shows which of the eighty-six hospitals in greater New York have general internships, those which have residencies in the specialties, and those which hold special clinics. Through this leaflet a physician can easily ascertain where to get such advanced medical instruction as he may desire. The map guides inserted in the pamphlet also will enable him readily to find any hospital in either New York or Brooklyn. In no other city in this country have the facilities for graduate instruction been so well organized, or the hospitals and clinics so carefully catalogued. The larger cities of this country, with their many well conducted hospitals and dispensaries, provide a great abundance of excellent clinical material which, if properly organized either through some such central committee or through university graduate medical schools, could be utilized in the higher education and training of physicians. Such organization for graduate medical instruction now constitutes one of the greatest needs in medical education in this country.

INFANT MORTALITY FOR 1925

The report of infant mortality for 1925 published by the American Child Health Association is compiled from figures applying to 632 of the 641 cities in the birth registration area, and from records of sixty-five of the seventy-five cities in the death registration area only. The infant mortality rate is the number of deaths under one year of age per thousand births, exclusive of stillbirths. In 1924 the infant mortality rate for cities in the birth registration area was 72.2, the lowest on record; for 1925, the figure was 72.6. Stonington, Conn., and Winona, Minn., presented the lowest village

infant mortality on record, with rates of 32. In 1920 these two communities had populations less than 25,000. New York, where the infant mortality was 64, had the lowest rate among the ten largest cities of the country. Although this is double the proportion of deaths found in the small communities of Stonington and Winona, as a group the larger cities have lower rates than those of small size. For more than four years, Seattle has maintained the lowest rate for cities in the birth registration area, which in 1920 had a population of at least 250,000. The infant mortality in Seattle in 1925 was 45. In the death registration area, the lowest infant mortality rate, 57, was attained by Boise City, Idaho. These are crude rates, to be sure, and crude rates are somewhat unjust, since they do not take into account such influences as economic status, climate, race and nativity stock. In Southern cities, for instance, infant mortality rates are greatly increased by the relatively large number of infant deaths among the negroes. Within individual communities, nevertheless, the trend of the infant mortality rate is a valuable index of the efficacy of local measures. Corrected rates, with their wider significance, will be available as soon as all communities secure reasonably accurate registration of births and deaths. With this in view, the American Child Health Association "strongly supports the government's efforts to have the entire country within the birth registration area by 1930, for it feels that a complete record of births and deaths is essential for the carrying out of an effective child health program."

CREMATION

As the population for a country grows larger and an increasing proportion of it migrates to the cities, disposal of the dead becomes a problem. Even now, in some communities, the economic loss from maintaining inviolable cemeteries is tremendous. The esthetic aspect, furthermore, has considerable weight, as burying grounds may be unsightly; and they injure real estate values. The practical alternative to earth burial is cremation. In the United States, although thinking people have long favored the method, cremation has not been widely adopted. Greater progress has been made in other places. Zurich, in Switzerland, for instance,[1] allows interment in a suitable place but does not provide facilities for it. On the other hand, every facility for cremation is provided. A Japanese[2] has recently developed a smokeless and odorless crematory in which combustion is rapid and which requires little fuel. In England, also, cremation is gaining favor. The number of cremations in Great Britain has increased from 445 in 1901 to 2,701 in 1925.[3] This progress, however, was not effected until the Cremation Society of England spent much effort on education of people in the idea. During this process of education, it was discovered that the public shunned the subject of what happens to the body after death. They were willing, however, to discuss the esthetic and sentimental aspects of the question. Beautiful gardens in which ashes might be dispersed appealed to them as a fitting, living memorial to the dead, much more appropriate than the traditional cemetery.

1. Bramley, Edward: Gardens of Rest, Cremation or Earth Burial, Sheffield Daily Telegraph, Jan. 26, 1926.
2. An Improved Crematory, Japan Letter, J. A. M. A. 86: 1146 (April 10) 1926.
3. Report of Council of Cremation Society of England for 1925, published by order of the council, 52 New Canadish Street, London, W. I.

Association News

THE WASHINGTON SESSION

Hotel Reservations

Communications concerning hotel reservations for the Washington Session should be addressed to the chairman of the Committee on Hotels, Dr. John A. Talbot, New Willard Hotel, Washington, D. C.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Francis Marion Inge, Mobile, has been elected president of the Association of Surgeons of the Southern Railway System.——Dr. John H. Owens, Ashland, has been appointed resident physician at Flat Top prison, to succeed Dr. J. E. Robbins, resigned.——Dr. John M. Hankins, East Lake, has been appointed assistant city physician for Birmingham.

Venereal Disease Clinic in Mobile.—The city, county and state contribute funds to operate a venereal disease clinic at the City Hospital, Mobile, where treatment is offered all persons who are unable to provide it themselves; in the annual report of the board of commissioners of the city of Mobile, it appears that 3,466 persons were treated at this clinic in 1925, 2,516 of whom were negroes. There were administered 10,391 arsphenamine treatments, 2,569 of which were to white persons. The total number of individual treatments given at the venereal disease clinic last year was 25,865.

CALIFORNIA

Society News.—Dr. Alfranio do Amaral, São Paulo, Brazil, addressed a special meeting of the San Diego County Medical Society, July 6, concerning the production and use of antivenin for snake bites.

Golf Tournaments.—The Southern California Medical Golf Association will hold its next tournament, August 19, at the Rancho Club; prizes will be given for handicaps; play starts at noon; initiation fee and dues are $3. The last tournament held at the Virginia Country Club was attended by sixty-six members. Arrangements are being made for a tournament at Del Monte, October 8-9, with the golfers from the northern part of the state. A special car on the Southern Pacific will be run to Del Monte for the members, which will leave there Sunday night, October 10, and arrive at Los Angeles, Monday morning at 8 a. m. The round trip fare is $18.50; berth, $4. Dr. Charles H. Weaver, Los Angeles, is the secretary of the Southern Medical Golf Association.

COLORADO

Report of Tuberculosis Foundation.—The annual report of the Colorado Foundation for Research in Tuberculosis, issued July 1, states that about $15,000 has been contributed to maintenance, and about $70,000 toward endowment. The immediate objective is a fund of $200,000, which will enable the research work to go forward on an income basis. The foundation's laboratory was moved to larger quarters in the basement of Palmer Hall, Colorado College, where there is access to all of the equipment in the physical and chemical departments of the college, and an opportunity to consult with professors of the various departments. The annual

report gives a list of fifteen papers published by members of the foundation since its founding in May, 1924, a list of fourteen other papers of studies in progress or accepted for publication, and a list of contributors to the foundation. Dr. Gerald B. Webb is the research director; Dr. Charles H. Boisservain and a group of investigators conduct the work.

DELAWARE

Diphtheria Prevention.—The state board of health recently began a campaign of immunization against diphtheria in the Laurel, Georgetown, Seaford and Milford special school districts, and in the Booker T. Washington School, Stockley Colony, and the Clayton Industrial School. Representatives of the state board met with the Sussex County Medical Society and agreed that the board should obtain the consent of parents, conduct the propaganda, furnish equipment and material, and do the Schick test, and that the physicians of each community were to give the toxin-antitoxin, for which a small fee was to be paid by the parents. From May 3 until May 28, Schick tests were made on 1,252 children, and 935 received toxin-antitoxin; about 94 per cent of the children tested were found susceptible to diphtheria; hearty cooperation, for which the state board expresses its appreciation, was received from all concerned.

DISTRICT OF COLUMBIA

Society News.—Dr. Grover Bache Gill has been elected president of the Maryland, Virginia and District of Columbia Medical Association; Dr. John E. Knight, Catlett, Va., vice president, and Drs. William Davis and Joseph D. Rogers, both of Washington, secretaries.

Personal.—Rear-Admiral Cary T. Grayson, U. S. Navy, retired, received the honorary degree of doctor of laws from the College of William and Mary at the recent commencement. ——Dr. Thomas A. Groover, Washington, recently received the honorary degree of doctor of science from George Washington University.——Dr. Rowland H. Ford resigned as assistant health officer, effective, August 12.

Names of Patients with Venereal Disease.—The executive committee of the Medical Society of the District of Columbia, the district health officer, the acting council of the medical society, Mr. Levi Cooke, and Representative Ralph Gilbert, held a conference recently about the law on venereal disease. Representative Gilbert, the author of this legislation, explained the law. The health officer then stated that hereafter the names of such persons would not be required to be reported except in case of those who failed or refused to follow the instructions issued to them by their physicians. It was agreed that the provisions of the law must be fully complied with in all other respects. The health officer requests the cooperation of the physicians in carrying out the law, and suggests that, in reporting cases of venereal disease, the number of the case as shown on the physician's office record be used instead of the name of the patient as heretofore required.

FLORIDA

Hospital News.—The Hollywood Company has offered $300,000 and a six acre site, it is reported, for a Southern Methodist Hospital.

Florida Physicians and Prohibition Laws.—In response to a request for the names of physicians whose liquor licenses have been revoked, the district prohibition administrator writes that the Florida law precludes the issuing of permits to physicians to prescribe intoxicating liquor in its natural state. The only permits used by physicians in Florida are those authorizing the use of alcohol for compounding medicinal prescriptions, and no revocation proceedings have been instituted against any physician in the state holding such a permit since the present executive personnel has been in charge of the district prohibition office.

ILLINOIS

Physician Fined for Violating State Prohibition Law.—Dr. Ben Russell of Buda plead guilty, July 30, to violation of the state prohibition law, it is reported, and was fined $400 and costs.

Liquor Licenses Revoked.—The district prohibition administrator with headquarters in Chicago announced, August 9, it is reported, the revocation of the liquor license of Dr. Albert Willis, Decatur.——The liquor license of the "New Home Sanitarium," Jacksonville, was also reported revoked.

Another Basket Picnic.—The Lee and Ogle Counties Medical Societies held their annual joint picnic at Lowell Park, Dixon, July 29; Dr. Philip H. Kreuscher, clinical professor of orthopedic surgery, Loyola University School of Medicine, Chicago, gave an address on "Backache"; Dr. Channing W. Barrett of the University of Illinois College of Medicine, on "Treatment of Fibroids"; Dr. John E. Tuite, Rockford, "Classification of Goiters," and Dr. William B. Peck, Freeport, "Reminiscences."

State Dental Bureau Established.—After several years of work to improve the dental welfare service of the state, the Illinois State Dental Society has secured permission to place one of its members on the state board of health; his salary will be paid by the Illinois State Dental Society, the Chicago Dental Society, and from such other sources as care to contribute for the purpose. It is presumed that when the value of this service has been demonstrated, the state will assume the expense. The appointee is Harold L. Freidinger, D.D.S., and he assumed his new duties, August 1.

Dr. Pfeiffenberger Honored.—The Alton Medical Society gave a banquet, July 28, in honor of Dr. Mather Pfeiffenberger, who was recently elected president of the Illinois State Medical Society. Dr. Nina P. Merritt, president of the Alton Medical Society, was toastmaster, and the principal speaker was Rev. A. Schwitalla, St. Louis, whose subject was "Idealism in the Practice of Medicine." Among other guests were Lieut.-Col. Ernest G. Bingham, U. S. Army Medical Corps, Jefferson Barracks, Mo.; Dr. Howard W. Barker, commanding officer, U. S. Veterans' Bureau Hospital no. 92, and Dr. Amand Ravold, president of the St. Louis Medical Society.

Mental Hygiene Committee.—The Central Illinois Committee for Mental Hygiene was organized, July 13, at Springfield, to carry on mental hygiene activities throughout the central part of the state and assist the Illinois Society for Mental Hygiene in state-wide activities by means of conferences, lectures, clinics and other education work; to secure field psychiatrists, social workers and psychologists to cooperate with the state medical society and the state department of health to secure a place on their program for mental hygiene, and to have semi-annual conferences among the various cities represented in the central state territory. Dr. Frank P. Norbury was named honorary chairman, and twenty-five directors are to be appointed.

Chicago

Liquor Licenses Revoked.—The local prohibition administrator, Mr. E. C. Yellowley, announced, August 9, it is reported, the revocation of the liquor licenses of the following:

Dr. Alphonse L. Beardslee
Dr. Lindsay A. Beaton
Dr. Joseph D. Cain
Dr. William J. Hurley
Dr. Clarence C. Reed
Dr. Leo R. Roth
Dr. Oscar A. Strauss

Warning—Mr. Fox Wanted.—The department of justice desires to locate George A. Fox, alias George William Fox, alias William Fox, who is wanted for securing money on worthless checks, and for impersonating a United States officer. Reports received indicate that Fox has passed more than fifty worthless checks in Chicago and other places; his method is to call on a physician, with some of whose friends he claims to be acquainted, and to carry on a long conversation about medical events; finally he states that he has been touring with his family in the east and has insufficient funds to return to Milwaukee; thus he persuades his victim to cash a check ranging from $25 to $50. Fox is fluent, well versed in medical terms, and poses as a doctor; he is about 43 years old, 60 inches tall, slightly round-shouldered, thin (about 140 pounds), has a smooth face, sandy hair, and has a conspicuous scar on the left undersurface of his chin. Any one encountering this man should immediately notify the bureau of investigation, department of justice, Chicago, Telephone Harrison 5448, or the detective bureau of the Chicago Police Department.

IOWA

Personal.—Drs. Tiffany J. Williams, New Haven, Conn., Norman F. Miller of the University of Michigan Medical School, Ann Arbor, and Cleary N. Swanson, Detroit, have been appointed to the staff of the obstetrics department at the University of Iowa College of Medicine, Iowa City.

Upper Des Moines Medical Association.—The annual meeting of this society will be held at Terrace Park Casino, Milford, August 17-18, under the presidency of Dr. Henry A. Powers, Emmetsburg. The Sioux Valley Medical Associa-

tion has accepted an invitation to attend this meeting and will hold its business session, August 18, after the afternoon session. Persons desiring tickets for the banquet at Templar Park ($1.25 per plate) should notify Dr. Hiram O. Green, Spencer, Iowa, on or before August 17. Among many speakers at the scientific sessions will be Dr. James F. Weir and Dr. Waltman Walters, Rochester, Minn., "Treatment of Infection of the Gallbladder and Common Duct"; Dr. Charles A. Elliott, Northwestern University Medical School, Chicago, "Diagnosis and Treatment of Hyperthyroidism"; Dr. Michael J. Kenefick, Algona, president elect, Iowa State Medical Society, "Osteomyelitis"; Dr. Frank A. Ely, Des Moines, "Neuropsychiatric Hints for General Practitioners"; Dr. Lee R. Woodward, Mason City, "Coronary Thrombosis"; Dr. Wilbur E. Post, Rush Medical College, Chicago, "Recent Progress in Nephritis"; Dr. Arthur Steindler, University of Iowa, "The Arthritic Knee." There will be a drive through the lake region, dancing, and public meetings addressed by Dr. William Jepson, president, Iowa State Board of Health, on "The Cancer Problem"; U. S. Congressman William Boies; Dr. Don M. Griswold, University of Iowa, and by Judge B. F. Butler, Sibley, on "The Relation Between the Medical Profession and the Juvenile Court."

KANSAS

Hospital News.—Dr. William G. Norman, Cherryvale, is remodeling a residence for use as a hospital, which will be opened to the public about September 1.

Personal.—Dr. Harold T. Morris, Topeka, has been appointed medical referee for Kansas of the Mutual Life Insurance Company of New York, to succeed Dr. Wilson K. Hobart, resigned.——Dr. Edward L. Saylor became the resident pathologist of Bell Memorial Hospital, July 1.——Dr. Michael J. Owens was recently elected president of the Kansas City Academy of Medicine.

Society News.—Dr. Robert D. Irland, Kansas City, Mo., addressed the Jackson County Medical Society, recently, on "Treatment of Carbuncles with Magnesium Sulphate."——The Golden Belt Medical Association was addressed, July 8, by Dr. Jabez N. Jackson, Kansas City, president-elect of the American Medical Association; by Dr. Benjamin F. Morgan, Clay Center, president of the state medical society, and by Dr. Francis M. McCallum, Kansas City, vice president of the Missouri State Medical Society.

LOUISIANA

Physicians Fined for Prescribing Liquor.—The following physicians were fined $100 each by Judge Foster in federal court, New Orleans, July 26, it is reported, for illegally prescribing liquor:

Dr. Alfred L. Adam	Dr. Abraham Mattes
Dr. Otto Braun	Dr. Edward McCarthy
Dr. Keith Kahn	Dr. Maurice S. Rosenthal

Cordial Relations.—The Orleans Parish Medical Society has accepted with a letter of thanks and appreciation the offer of the Board of Administrators of the Tulane Educational Fund to continue the existing cordial relations and assurance of good will whereby the medical society is extended the privilege of conducting its meetings and housing its library in the Hutchinson Memorial Building of Tulane University. A resolution adopted by the board and recently presented to the medical society states that the contemplated erection of a new building for the Tulane school of medicine will in no way affect the present relations other than to provide more modern and better facilities for continuing the work of the society; further, that it is the purpose of Tulane University to foster higher education, and, through its department of medicine, to cooperate with the organized medical profession in the advancement of medical science.

MARYLAND

Hospital Changes Name.—The Hebrew Hospital and Asylum, Baltimore, has changed its name to the Sinai Hospital of Baltimore; 33 per cent of the pay patients treated at the Hebrew Hospital were Christians, and 51 per cent of those treated in the wards and free dispensaries. When the new $2,000,000 Schmidt Memorial Building is occupied in September, the institution will have a capacity of 275 beds.

Child Health Conferences.—The bureau of child hygiene is conducting child health conferences this summer, in an attempt to examine as many as possible of the children who will enter school this fall. During June, nine conferences were held in seventeen of the twenty-three counties, and a total of 1,842 children were examined; of those examined, only one out of three had been vaccinated against smallpox; about one out of every five was underweight, and about one out of every three had "unhealthy tonsils or adenoids." A report of the examination is sent to the family physician, whom the parents are advised to consult if the child needs medical service. There will be about 16,000 children to reach school age in Maryland this year. These conferences will continue through the summer.

MASSACHUSETTS

Health at Lynn.—Telegraphic reports to the department of commerce from sixty-six cities with a total population of about 29,000,000 for the week ending July 31 indicates that the lowest mortality rate (4) was for Lynn, and that the mortality rate for the group of cities as a whole was 10.9. The mortality rate for Lynn for the corresponding week last year was 7.6, and for the group of cities, 10.5.

Plan to Assist Communities Without Physicians.—The board of registration in medicine began in April to file a card in its office for each medical graduate as he is licensed by the board, on which is stated his desire for a location, or where he probably will locate. A letter has been sent out to the chairman of all boards of health in the state advising them of this plan, and those which signify their desire for additional physicians in their community are sent the names and addresses of physicians recently licensed who desire locations.

Personal.—Dr. Henry I. Dorr, Winchester, was presented with a loving cup, recently, at a medical meeting of the Associated Anesthetists of the United States and Canada, in recognition of his services in the advancement of science and the teaching of anesthesia; Dr. Dorr, months ago, gave $30,000 toward the equipment of a laboratory for research in anesthesia at the Temple School of Dentistry, Philadelphia.——Dr. Arial W. George, Boston, recently received the honorary degree of doctor of science from Tufts College.——The administrative board of the School of Public Health, Harvard University, for the coming year includes the president of the university, Dr. Lowell, and Drs. David L. Edsall, Milton J. Rosenau, Ernest E. Tyzzer, Edwin B. Wilson, Hans Zinsser and William L. Moss.

Society News.—Dr. Charles E. Perry, Hartford, addressed the Hampshire District Medical Society, July 15, on "Pneumonokoniosis."——The officers of the district medical societies met with the president of the state medical society, June 29, at the Harvard Club, Boston, to consider the work of the state society for the coming year. Following a luncheon, the legislative plans were fully presented, covering raising the standards of medical education, opposition to special examining boards, compulsory vaccination in private schools, and the restrictive feature in the appointment of members of the board of registration in medicine.——The Plymouth District Medical Society celebrated its seventy-fifth anniversary, July 15, at Nantasket; addresses were given by Dr. James S. Stone, president, Massachusetts Medical Society; Dr. Enos H. Bigelow, Framingham, on "Progress in Medicine," and Dr. Nathaniel K. Noyes, Duxbury, "History of the Society from 1851 to the Present."——The Massachusetts Central Health Council held a series of group meetings, June 15, in Boston, following a luncheon at the Hotel Westminster. The council was organized six years ago to bring together agencies interested in health for a better understanding and concerted action; among the agencies represented at this meeting were the Massachusetts Tuberculosis League, the Massachusetts Association of Boards of Health, the Massachusetts Association of Directors of Public Health Nursing Organizations, the Dental Hygiene Council of Massachusetts, the Massachusetts Medical Society, the New England Heart Association, and the Massachusetts Society for Mental Hygiene.

MICHIGAN

Hospital News.—Big Rapids is conducting a campaign for $40,000 to erect a community hospital.——The contract has been let for a $500,000 addition to St. Mary's Hospital, Saginaw.

Society News.—Dr. Alexander W. Blain has been elected president of the Academy of Surgery of Detroit for the ensuing year.——The state medical society conducted postgraduate conferences at Escanaba, July 26, Marquette, July 28, Houghton, July 29, and Ironwood, July 30. Among the speakers were Dr. William H. Marshall, Flint, "Diagnosis of Chest Conditions"; Dr. John L. Garvey, Ann Arbor, "Essentials in a Neurologic Examination"; Dr. Max M. Peet, Ann Arbor, "Fractures of the Skull"; Dr. Roland S. Cron, Mil-

waukee, "Prenatal Care"; Dr. Elmer L. Eggleston, Battle Creek, "Gastric Ulcer."——Drs. Cameron, Bell, Jackson and Williams were hosts to the Alpena County Medical Society and the Chippewa County Medical Society at Long Lake Lodge, July 15; there was a golf tournament, a dinner, and papers by Dr. Festus C. Bandy, Sault Ste. Marie, on "Mental Diseases," and Dr. George A. Conrad, Sault Ste. Marie, on "Enlarged Prostate."——The Oakland County Bar Association was host recently to the Oakland County Medical Society at a dinner following a golf tournament in which thirty-seven lawyers and thirty physicians took part. The state medical journal says this was the first joint golf tournament of doctors and lawyers in Michigan.

MINNESOTA

New Medical Society.—At a meeting at the St. Paul Town and Country Club, June 11, the Minnesota Society of Internal Medicine was organized for the purpose of promoting good fellowship, cultivating a distinct type of special practice in medicine, and encouraging medical education of a high order and stimulating research. The first officers elected were Dr. Charles L. Greene, president; Dr. George D. Head, vice president, and Dr. Edwin L. Gardner, secretary-treasurer. The first scientific meeting will be in November at Rochester.

Personal.—Edward C. Kendall, Ph.D., sailed for Stockholm, Sweden, July 17, to read a paper on "Oxidative Catalysts" before the International Physiological Congress, which met, August 3.——Dr. Estes H. Hargis has been appointed first assistant in general surgery to Dr. William J. Mayo for the quarter beginning July 5, and Dr. Claude F. Dixon first assistant to Dr. Charles H. Mayo.——Dr. Claude B. Lewis, St. Cloud, has been elected secretary-treasurer of the Great Northern Railway Surgeons Association.——Dr. Alvah J. Stowe, Rush City, has retired from the practice of medicine on account of ill health.

County Society Meeting.—The scientific session of the forty-eighth annual meeting of the Wabasha County Medical Society was held, July 8, aboard the *North Star*, the yacht of Drs. Charles H. and William J. Mayo. Among the speakers were Dr. George M. Waldie, Wabasha, "Relation of the Sanatorium to the General Practitioner"; Drs. Winford P. Larson and Woodard L. Colby of the University of Minnesota, "Immunization and Serum Treatment of Scarlet Fever and Diphtheria," and Dr. David S. Fleischauer, Wabasha, "Some Phases of Medical Economics." There was a dinner at the Hotel Anderson given by the Wabasha physicians and wives, and, following the boat ride, a reception. At the business session, Dr. Joseph S. Collins, Wabasha, was elected president of the society; Dr. Laurence F. Sutton, Mazeppa, vice president, and Dr. William F. Wilson, Lake City, secretary-treasurer. Dr. Wilson is said to have served the society in that capacity for about thirty years.

MISSISSIPPI

Society News.—Dr. Hugh A. Gamble, Greenville, recently addressed the North East Mississippi Medical Society, at Houston, on "Glucose Therapy by Vein"; the next meeting will be at Aberdeen in September.——The North Mississippi Six Counties Medical Society met at New Albany, July 21; Dr. Willis C. Campbell, Memphis, spoke on "Prevention of Deformities by the General Practitioner"; Dr. Seale Harris, Birmingham, Ala., on "Food in the Prevention of Diseases," and Dr. Peter W. Rowland, Oxford, on "Cardiac Stimulants."

"Eye Specialists" Swindle Aged Woman.—Two men, claiming to be eye specialists from New York, swindled Mrs. S. D. Leake, an aged and almost blind wife of a farmer near Laurel, out of $700, July 7, by a fake cataract operation. Pretending he could remove the cataract with radium, one of the swindlers put something that congealed in Mrs. Leake's eye, withdrew the coagulum and called it the cataract; the other swindler accompanied the husband to the bank to cash the $700 check; they escaped before the fraud was discovered, traveling in an Overland coupe; one is said to be tall and dark, the other tall and fair.

New Oyster Regulations.—The state board of health, cooperating with the U. S. Public Health Service, has promulgated regulations for handling oysters, effective September 1; they require, it is reported, that oyster plants must be equipped with steam under pressure or hot water for the sterilization of utensils; each employee must have a certificate of health from a physician; no oysters can be shucked in boats or skiffs, and if any are to be shipped out of the state, the floors of the packing plant must be of concrete; no oysters will be allowed on floors, and they must be on a bench at least 4 inches above the level where employees walk; buckets for receiving shucked oysters must also be raised above the floor.

NEW HAMPSHIRE

New Hampshire Surgical Club.—The annual meeting of the New Hampshire Surgical Club will be at Hanover, September 6, and, as usual, a week end outing will precede the meeting, comprising, among other things, a golf tournament and supper, September 5, at one of the outing club cabins. There will be a clinic at Mary Hitchcock Hospital in the forenoon, September 6, the presentation of papers and a business meeting in the afternoon, and a banquet in the evening, at which Dr. Elmer H. Carleton will be toastmaster.

NEW YORK

Hospital News.—The construction at Byram Woods, Harrison, of a $500,000 branch of St. Luke's Hospital, New York, was started July 26.——Ithaca General Hospital has just completed a twenty-two bed contagious ward at a cost of about $90,000.

Annual Registration of Physicians.—Any physician in New York who does not receive a registration blank before the first of October should communicate with the secretary of the board of medical examiners of the state department of education. Registration blanks will be mailed to all physicians before that date. These are for the period from Jan. 1, 1927, to Dec. 31, 1927.

Camp for Crippled Children.—The New York Rotary Club, dedicated August 1, what is said to be "the first camp in the world for the exclusive use of crippled children." Nine buildings have been constructed, all cabins except the mess hall, which cost $30,000. About 1,200 applications have already been received for a month at the camp. The Long Island Parkway Commission donated the site.

New York City

Collection and Sale of Mother's Milk.—The Children's Welfare Federation, consisting of 221 organizations interested in child welfare, conducts three units for the collection and sale of mother's milk. During 1925, there was collected from ninety-eight mothers 1,859 quarts and 29 ounces of milk, of which 366 quarts and 26 ounces was given away; the remainder was sold for from 20 to 30 cents an ounce. The mothers are paid 10 cents an ounce for the first 5 ounces and 15 cents for every ounce over 5. Milk is collected under the supervision of a matron and a registered nurse. The average mother has about 10 ounces of milk to sell each day, says the *Bulletin* of the Medical Society of the County of Kings, but some have supplied 30 and 40 ounces in addition to nursing their own babies. Orders are placed through the central office of the federation, 505 Pearl Street.

Physicians Indicted for "Prescription Bootlegging."—A federal grand jury indicted the following physicians, August 4, it is reported, for conspiracy to violate the National Prohibition Act. The evidence is said to have been collected over a period of several months by Assistant U. S. Attorneys John J. Fogarty and H. G. Hitchcock who examined and compared more than 500,000 prescriptions:

Dr. Frank J. Accarino
Dr. Alexander R. Alexander
Dr. Benjamin H. Archer
Dr. Samuel Ash
Dr. Emanuel Bailyn
Dr. Gustave Brown
Dr. Wilfred P. Byrne
Dr. Ignazio Cangialosi
Dr. Amedee J. Debon
Dr. Stella Shaffer Epstein
Dr. John Edgar Getman
Dr. Harold Goldstein
Dr. Wallace B. House
Dr. Morris A. Jacobs
Dr. Harold H. Johnson
Dr. Paul Kaufmann
Dr. Jose Lisandro Medina
Dr. Mathias Nachuni
Dr. Dominico Paccione
Dr. Harry Pike.
Dr. Morris Rubinstein
Dr. Percy Morton Rubenstein
Dr. Samuel Schechter
Dr. John E. Swartz
Dr. Lazar Wallerstein
Dr. William L. Weintraub
Dr. Abraham L. Wincor

The following druggists, among others, were reported to have been indicted:

George J. Blatman, 220 East Broadway
Samuel R. Hurwitz, 8th Ave. and 44th St.
Samuel Marcus, 126 West 43th St.
Charles Moss, 5 West 56th St.
Samuel Perlmutter, 9th Ave., cor 28th St.
Nathan Saloh, 1500 Boston Road
Julius Jay Smith, 8th Ave. and 44th St.

OHIO

Illegal Practitioners Fined.—Charles H. Layzell, Marysville, and Martin Langbough, Richwood, were each fined $100 and costs recently, it is reported, on a charge of practicing medicine without a license. Both of these men are said to have been sent to the workhouse three years ago, when they refused to pay a fine for a similar offense.

Hospital News.—The Piqua Memorial Hospital will soon construct a $30,000 addition, to be known as the Patterson Memorial Wing.——Dr. Samuel B. McGuire, Dover, has been elected president of the medical staff of Union Hospital for the ensuing year.——The Cleveland City Hospital group is to construct a $100,000 addition to the children's tuberculosis preventorium.

Congress Pensions Yellow Fever Volunteer.—Clyde L. West, who volunteered to be bitten by mosquitoes infected with yellow fever at Camp Lazear, Cuba, in 1901, has been pensioned by Congress, the War Department announces, at the rate of $100 a month for the remainder of his life. West enlisted in the U. S. Army at Toledo in 1899, volunteered to be bitten in connection with the work of the Walter Reed Commission, was taken sick with yellow fever, Feb. 13, 1901, and was discharged from the service, July 10, 1902, at Fort Myer, Va. He has been employed as watchman in Washington by the office of Public Parks and Buildings.

Society News.—The Fayette County Medical Society recently entertained the Five County Medical Society—Clinton, Greene, Highland, Ross and Fayette—at a dinner attended by 118 physicians and their wives, Dr. Leora G. Bowers, Dayton, president, Ohio State Medical Association, and Dr. Ben R. McClellan, Xenia, past president of the Ohio State Medical Association, were among the speakers; Dr. Howard L. Stitt, Cincinnati, spoke on "Aspiration and Irrigation of the Bronchial Tubes."——The Darke County Medical Society held its June meeting at the Greenville water softening and purification plant, which they inspected; the chemist in charge gave a talk on the modern methods of purification and softening of water.——Dr. George W. Crile, Cleveland, addressed the Four County Medical Society—Williams, Defiance, Fulton and Henry—at Bryan, June 24.——Dr. Berman S. Dunham, Toledo, addressed the Putnam County Medical Society, Ottawa, July 1, on "Cisternal Puncture in Intracranial Birth Injuries."——The annual clinic of the Ashtabula County Medical Society was recently held at the Ashtabula General Hospital; Dr. Roy W. Scott, Cleveland, conducted the clinic for adults, and Dr. Henry J. Gerstenberger, Cleveland, the children's clinic.——The Tuscarawas County Medical Society held a joint meeting with the Tuscarawas County Bar Association at New Philadelphia, recently; topics of mutual interest to the two professions were discussed, Dr. James A. McCollam speaking for the medical society; a similar joint meeting was held last year.——The Muskingum County Academy of Medicine, Zanesville, refused to endorse the clinic for children of preschool age, being fostered by the state department of health and the Women's Federated Clubs, at its July meeting, chiefly, it is said, because such clinics encourage undeserved charity and tend toward state medicine. The academy, however, favors the continuance of the tuberculosis clinic which is being carried on under the auspices of the Federated Clubs.——Dr. Robert L. Lawwill, Seaman, addressed the Adams County Medical Society, recently, on "Puerperal Sepsis."

OREGON

Society News.—The Eastern Oregon Medical Society held its annual meeting at Hot Lake, August 4, following a trip to North Powder Lakes, where a "cowboy" breakfast was served, and addresses were made by Drs. Isaiah U. Temple, Pendleton, on "Tick Paralysis"; Dr. Leo B. Bouvy, La Grande, "Periodic Examinations from the Specialist's Standpoint"; Dr. Thomas J. Higgins, Baker, "Sidelights on Twenty Years of Practice," and Dr. Thomas E. Griffith, The Dalles, "Professional Ethics." There was a reception and dance in the evening, and a symposium by members of the state board of health.——The Douglas County Medical Society was organized at a meeting in Roseburg, July 14; Dr. Alvane C. Seely was elected president, and Dr. Richard F. Thompson, secretary.

PENNSYLVANIA

Pittsburgh's New Medical Center.—The new $6,000,000 Presbyterian Hospital, Pittsburgh, when completed will be the general hospital for the proposed new medical center of the University of Pittsburgh; present plans provide for a hospital of 600 beds, to be erected on the "knoll" now occupied by the Faculty Club. It has been announced that the Eye and Ear Hospital, 1945 Fifth Avenue, will join in the medical center and erect a $1,000,000 structure opposite the new children's hospital on the university's site. Plans are being considered for the affiliation of the Montefiore and another special hospital with the medical center.

Philadelphia

Personal.—Dr. Laurence Webster Fox, who has spent the last two summers among the American Indians in trachoma eradication work, is working this summer among the Crow Indians at Billings, Mont.; Dr. Fox held a clinic at Browning, Mont., August 10, which was attended by twenty-eight physicians of the Indian service.——Dr. Charles H. Frazier, professor of surgery, University of Pennsylvania School of Medicine, left for a five months' trip in China, where he will deliver an address before the "Chinese Medical Society" at Peking in September.

SOUTH CAROLINA

Personal.—Dr. William D. Ferguson has been reelected chairman of the board of health of Laurens.——D. James A. Hayne, state health officer, received the honorary degree of doctor of public health at the recent commencement of the Medical College of the State of South Carolina.

TENNESSEE

Society News.—Dr. Ralph H. Monger, Knoxville, gave an illustrated lecture before the Greene County Medical Society, July 12, at Greeneville, on "Affections of the Heart and the Kidney."

Typhoid Outbreak.—There had been thirty-two cases of typhoid reported in Nashville up to July 23, it is reported, as against only four cases reported in that city for June, and three deaths were reported in July; seventeen of these cases, the health officer said, were contracted outside of the city. In none of the thirty-two cases reported in July had the patients been vaccinated against typhoid.

VIRGINIA

Physician Sentenced for Narcotic Violation.—Dr. John W. Brown, Hampton, was sentenced, July 6, to four months in jail and fined $200 on each of five counts charging violation of the narcotic law, it is reported. The jail sentence will run concurrently.

Virginia Physicians and Prohibition Laws.—The district prohibition administrator at Roanoke, Mr. R. A. Fulwiler, in response to a request for the names of physicians whose liquor licenses have been revoked, writes in part as follows: "I beg to advise that we only have a very limited number of revocations in this state as our physicians are very high class citizens. We seldom have more than two or three a year."

GENERAL

Conference on Pharmaceutical Research.—The fifth annual meeting of the National Conference on Pharmaceutical Research will be held at the Hotel Bellevue-Stratford, Philadelphia, September 11. Reports will be received from delegates from the fourteen affiliated organizations as well as reports from the ten standing committees and from the special committees. The general discussions will be on: (1) census of research; (2) graduate students in pharmacy and their research work; (3) research topics; (4) research grants and prizes, and (5) research fellowships and scholarships.

Warning — Microscopes Renovated. — We have been informed that "Major Raymond de Cercy" has recently been working his old game in Minnesota of repairing microscopes and other medical equipment, and charging fancy prices for unnecessary work. He is said to be using order books and cards of the Cameron's Surgical Specialty Company as if he were still connected with that firm. He claims to be a German, while formerly he was said to be a French hero, a chevalier of the Legion of Honor, etc. His method appears to be to take a physician's microscope without giving an estimate of the cost of repairs, and returning the next day with a bill, which he justifies by stating that almost everything about the microscope had to be replaced. Major Raymond de Cercy was the subject of a similar item in the Utah *News*, in THE JOURNAL, Dec. 5, 1925, and in the Washington *News*, Jan. 2, 1926.

Recommendation Concerning S. Scabiei.—The secretary of the international commission on zoological nomenclature invites attention to the fact that application has been made to the commission to suspend the rules in the case of *Sarcoptes*, Latr., 1804, tsd. (Latr., 1810) *passerinus*, and to place *Sarcoptes*, 1804, in the official list of generic names with *S. scabiei* as type. The argument states that the application

of the rules to this "transfer" case will result in greater confusion than uniformity, involving generic, subfamily and family names, and designation of diseases in human and comparative medicine. The suspension requested will result in validating internationally accepted (though erroneous) nomenclature in consistent use for more than a century in zoology, and in human and comparative medicine. The secretary is familiar with the premises and in his report to the commission, will state that he considers this a typical case in which suspension is justified. He will, however, delay announcement of final vote until about Oct. 1, 1927, in order to give ample opportunity to interested persons to express their views for or against the suspension.

Prize for Advancement of Science.—The fourth $1,000 prize of the American Association for the Advancement of Science will be awarded at the Philadelphia meeting. The council has decided that hereafter the annual prize will not be divided, the entire amount each year going to a single winner. There is available sufficient money for three more annual prizes from funds given by a member who wishes his name withheld. The prize is awarded to some one who presents at the annual meeting of the association and associated organizations a paper making a noteworthy contribution to science; he does not necessarily need be a member of the association; there is no formal competition; all papers on the program are considered. The award is decided by a special committee, which, for the Philadelphia meeting, comprises:

C. E. Seashore, chairman; dean of the Graduate College, University of Iowa.
Otis W. Caldwell, director of the Lincoln School, Teachers College, New York City.
Charles B. Davenport, director, Station for Experimental Evolution, Cold Spring Harbor, N. Y.
Lauder W. Jones, professor of chemistry, Princeton University.
C. F. Marbut, chief, Division of Soil Survey, Bureau of Soils, U. S. Department of Agriculture.

American Society for the Control of Cancer.—June *Campaign Notes* explains the organization of the American Society for the Control of Cancer as follows: it consists of four elements; the officers and executive committee, the staff, the field organization, and its members and supporters. The executive committee is elected at the annual meeting of the council, and its chairman is the president of the society; the staff comprises the managing director, a field representative and the half dozen clerical assistants. The field organization consists of a chairman for every state and every province in Canada, who are appointed by the managing director, usually for two or three years. The state chairmen appoint at time of exceptional activity local chairmen to cover more effectively their own territory, and all local chairmen appoint committees of not less than five nor more than twenty to assist in conducting the work, and these, when the period of intensive activity is over, automatically go out of existence, and the office of local chairman becomes vacant; money for local campaigns is paid by voluntary subscriptions in the territory where spent. A period of local activity may last a month or longer; two states have adopted a plan for an active period of three years. The staff of the central society assists in these local campaigns by preparing and sending out pamphlets, lantern slides, moving pictures and newspaper articles, and assists in the management of these local campaigns. The total expenditures for the American Society for the Control of Cancer in 1925 were $56,975.04; a campaign is being conducted for an endowment of $1,000,000 to relieve the anxiety due to the fact that more than half of the annual income now is obtained through temporary grants from financial foundations. This campaign was undertaken only after careful study of every possible method of financing the society, and up to June 18, there had been contributed for endowment $333,515. The society has arranged a meeting of eminent students of cancer to be held at Lake Mohonk, N. Y., in September; throughout the year, in many parts of the country, a more than usual intensive campaign of education will be carried out. The headquarters of the society now is at 25 West Forty-Third Street, New York, and the managing director, George A. Soper, Ph.D.

Bequests and Donations.—The following bequests and donations have been announced recently:

Montefiore Hospital, New York, $50,000, by the will of the late Henry F. Elias.

The Presbyterian Hospital, New York, and the Greenwich Hospital, Greenwich, Conn., $100,000 each, by the will of the late John Kennedy Tod.

The Warren Hospital, Phillipsburg, N. J., a trust fund of $5,000, by the will of Mrs. Mary A. S. Reese, the income from which is to be used for beds for the care of poor American-born patients.

Misericordia Hospital, New York, $1,000 and one half of the residue; Servants of Relief for Incurable Cancer, $1,000, and Mount Sinai Hospital, New York, $500, by the will of Mary F. Fitzgerald.

Mountainside Hospital, Montclair, N. J., $25,000, and the New Jersey Orthopedic Hospital, $20,000, by the will of Henry S. Chapman, Glen Ridge.

Hillsboro Hospital, Hillsboro, Ill., $10,000, by the will of the late William F. Welge.

The Medical Department of the University of Georgia, $10,000, and the Children's Hospital, Augusta, $5,000, by the will of the late Mrs. Julia F. Moore.

The Jewish Hospital, Brooklyn, $10,000, by the will of the late Jennie Kutz.

St. Joseph's Hospital, New York, and the Servants for Relief for Incurable Cancer, each $250, by the will of James H. McGean.

St. Mary's Hospital, Hoboken, N. J., $1,000, by the will of Margaret E. Huesmann.

The New York Ophthalmic Hospital, $1,000, and the New York Association for Improving the Conditions of the Poor, $5,000, from the estate of Helen M. Thompson.

The Northern Liberties and the Eaglesville Sanitarium, $100 each, by the will of the late Dora Miller.

The Middletown Hospital, Middletown, Ohio, $4,000, by the will of Arthur D. Lefferson.

The Pasadena Hospital, $50,000, from the estate of the late John McWilliams, Pasadena, Calif.

The Toledo Hospital, Toledo, Ohio, $150,000, by the will of Mrs. Gertrude Croxton, Philadelphia.

The Sandusky County Memorial Hospital, Fremont, Ohio, $35,000, from Mrs. Webb C. Hayes, Fremont, Ohio.

The Jane Lamb Hospital, Clinton, Iowa, $275,000, by the will of the late Mrs. Emma E. Young.

The Long Island College Hospital, $15,000, the Presbyterian Hospital, $10,000, and a contingent bequest for a fund of $300,000 to found the John E. Borne Chair of Medical and Surgical Research in the College of Physicians and Surgeons of Columbia University, by the will of the late Mrs. Ellen M. Borne.

St. Mary's Free Hospital for Children, New York, about $100,000, and the Trudeau Sanatorium, Saranac Lake, N. Y., $25,000, by the will of the late Edmund Penfold.

St. Michael's Hospital, Newark, N. J., $1,000, by the will of Michael J. O'Connor.

The Montefiore Home, $10,000, and the Mount Sinai Hospital, New York, $5,000, by Jacob Rossbach.

The Mount Sinai Hospital, New York, $7,500, from the estate of Siegfried W. Mayer.

The French Hospital, New York, $500, by the will of Celine M. DeComps.

The St. Joseph's Hospital, Memphis, Tenn., $5,000, by the will of Jacob Gerber.

The Presbyterian Hospital, St. Luke's Hospital, Bar Harbor Hospital, Bar Harbor, Maine; the Nursery and Child's Hospital, Baltimore, and the Association for Improving the Condition of the Poor, all of New York, each $25,000, by the will of Augustus Coe Gurnee.

PORTO RICO

Tuberculosis Work in Porto Rico.—During the last two years, tuberculosis dispensaries have been opened in six towns in Porto Rico, and 6,018 patients have been examined and treated; 3,462 patients were classified as clinically positive or suggestive of tuberculosis, while 2,013 presented definite signs of tuberculosis. During this period, there were 670 clinics held, and 13,492 consultations. There are thirteen nurses engaged in the department of health.

Personal.—Dr. Robert A. Lambert has taken up his duties as director of the new School of Tropical Medicine.——Dr. George C. Payne has succeeded Dr. Rolla B. Hill as director for Porto Rico of the International Health Board of the Rockefeller Foundation.——Dr. Pedro N. Ortiz, commissioner of health, addressed a public meeting in Philadelphia, June 30, on "General Health Conditions in Porto Rico."——Drs. Alice M. B. Burke and Garry R. Burke, who have been on the staff of the Presbyterian Hospital, San Juan, for years, are spending their vacation this summer with their relatives in Buffalo, N. Y.

FOREIGN

German Hospital Information Bureau.—The Commission on the Organization of Public Hospitals in Germany is establishing a bureau in Düsseldorf, which will collect information on all questions pertaining to hospital law and organization, the present status and progress of German hospitals, and of hospitals in other countries. The information bureau is being established with the cooperation of several provinces and of various state departments. The commission was created in 1922 as a common representative body; it has assumed the task of elaborating all questions pertaining to hospital organization.

Maternity Hospital Opened.—The Prince of Wales officially opened the Obstetric Hospital at the University College Hospital, May 28. The institution has sixty beds, thirty for gynecologic and thirty for obstetric cases. The obstetric work will be under the care of a special director. A senior member of the medical staff will reside in the hospital to care for complicated cases and to teach the students in obstetric training. The Rockefeller Foundation, in bestowing on University College £1,205,000 in 1920, provided the

funds for the construction of this building. A campaign in Great Britain to provide an endowment of £180,000 for this hospital has been successful.

Prize Essays.—The directors of the *Medical Journal of South Africa* offer prizes for the best three essays submitted on or before December 31 on one of the following subjects:

(*a*) Dental caries in native children in kraals or in urban areas.
(*b*) Frequency of infestation with and pathologic conditions due to intestinal parasites among Europeans or natives, and the treatment.
(*c*) Surgical tuberculosis in South Africa and its treatment.
(*d*) Etiology and pathology of chronic diarrhea, with especial reference to South Africa.

The competition is open to native medical students or medical practitioners, even though they may temporarily reside outside South Africa. Two or more persons may collaborate in writing an essay. The prizes will be 100, 60 and 40 guineas, respectively.

Plan to Combat Overcrowding in Contract Practice.—The *Deutsche medizinische Wochenschrift* hails as very important the recent discussion at the annual assembly of the Hartmann League—the great medical organization which is constantly seeking to safeguard the interests of the profession in Germany—on ways and means to counteract the overcrowding, especially in contract practice with the compulsory health insurance organizations. The plan proposed is to award a pension to physicians in this *Krankenkassen* practice who are willing to retire voluntarily from this work at the age of 70 or even of 60. The funds for this are to be raised by increasing the dues and initiation fees, and by other means. The government is to be asked to forbid *Krankenkassen* practice to medical state officials on full pay, and to arrange that all medical state officials shall be appointed on a full-time basis. Analysis of the field shows that the supply of physicians for contract practice is fully covered by the present numbers of qualified or soon to be qualified physicians, and the government is to be asked to forbid social insurance contract practice to new graduates for ten years after the present year. The only exceptions should be the sons and daughters of physicians; if they insist on choosing a medical career after the warning of their fathers' experience, it is evident that they must have a special calling for it.

Personal.—The *Hospitalstidende* mentions that Dr. Kjærgaard, surgeon in chief of the Sundby Hospital, has been appointed to the chair of surgery at the University of Copenhagen left vacant by the retirement of Prof. T. Rovsing. The committee in charge of the appointment consisted of Professors Schaldemose, Lendorf and F. C. C. Hansen, and they selected Dr. Kjærgaard from the eight candidates without competitive procedure.—— Drs. Borberg, Copenhagen, and Sæthre, Oslo, are to open the discussion on neurosyphilis, the topic appointed for the third Scandinavian Neurologic Congress, to meet at Oslo, Sept. 17, 1926.—— Among the research workers, aided by a certain endowment in Norway, are Dr. P. F. Holst, who is studying "Leukocytes in Pernicious Anemia"; Dr. A. Tanberg, "Influencing Tadpoles by Diet"; Dr. T. Skaar, "Experimental Rachitis in Dogs"; Dr. G. Langfeldt, "Endocrine Therapy in Mental Disease," and Dr. K. Hansen, "Determination of Fat, Water and Ash Content of Living Human and Animal Organisms."—— Dr. P. Delmas, professor of obstetrics at the University of Montpellier and the local medical syndicate won their suit against a man who had carved on his wife's tomb "Victim of the Professors." The court ordered the man to remove the inscription, with a penalty for every day of delay, and to pay 500 francs to the syndicate and 1 franc to Professor Delmas.

London School of Hygiene and Tropical Medicine.—The cornerstone of the London School of Hygiene and Tropical Medicine was laid by Mr. Neville Chamberlain, minister of health, July 7, and the steel structure for the new building is now being erected. About five years ago the ministry of health appointed a committee to investigate the needs of physicians for postgraduate work, and the British Medical Association submitted a memorandum to the committee advocating the establishment of a postgraduate medical school and also of an institute of state medicine, both to be associated with the University of London. The financial arrangements were solved by the Rockefeller Foundation, which offered $2,000,000 to erect a building, and later about $20,000 a year to provide a director and staff to make preliminary arrangements regarding the building and its work, provided the British government accepts the responsibility of maintaining the school and providing a staff. There will be five floors, the upper two floors being recessed, and preliminary arrangements provide for six main divisions: the principles and practice of preventive medicine, general sanitation, administration; epidemiology and statistics; medical zoology; bacteriology and immunology; physiology, principles of hygiene, and applied physics. The school is intended to accommodate 250 students, 100 of whom will engage in the study of tropical medicine. About one sixth of the total space will be devoted to research work.

Government Services

Navy Personals

Lieut. Comdr. William T. Lineberry has been transferred to the Naval Hospital, Norfolk, Va.; Lieut. Comdr. Sankey Bacon, from the navy yard, Washington, D. C., to the U. S. S. *Sirius*; Lieut. Comdr. William E. Findeisen from the Receiving Ship *New York* to the navy recruit station, New York; Comdr. Charles E. Ryder from the supply depot, Brooklyn, to the Virgin Islands.——The following lieutenants, junior grade, have tendered their resignations from the navy: David W. Truscott, C. A. R. Lindholm, Samuel J. Roberts and Marion T. Rosser.——Comdr. Charles G. Smith has been recommended transferred from the naval training station, Hampton Roads, Va., to the submarine base Coco Solo, Canal Zone.——Lieut. Comdr. Carroll R. Baker has been recommended transferred from the U. S. S. *New York* to the U. S. S. *Arkansas*.——Lieut. John A. Cloyd, who has been attached to the navy recruiting station, Philadelphia, has tendered his resignation as officer of the navy.

Promotions in Public Health Service

Dr. Joseph W. Mountin was promoted and commissioned in the grade of surgeon, July 17; Dr. Ralph E. Porter was promoted and commissioned in the grade of surgeon, July 15, and Dr. Ralph L. Lawrence was promoted and commissioned in the grade of passed assistant surgeon, June 30.

Patients in Army Hospitals

There were 5,150 patients in army hospitals in the United States, July 3, of whom, 2,665 were active army and navy personnel; 1,786 beneficiaries of the Veterans' Bureau; 136 beneficiaries of the Soldiers' Home, and 563 were on a civilian status. At the corresponding time last year, there were 5,314 patients in these same hospitals. Of the total number 3,621 were in general hospitals, including the station hospital at Fort Sam Houston.

Officers Ordered to Foreign Duty

The Surgeon General, U. S. Public Health Service, has issued orders assigning Surg. Charles W. Vogel to duty at Hamburg, Germany; Surg. David J. Prather at Warsaw, Poland; Surg. Walter C. Tenfel at Stockholm, Sweden, and Asst. Surg. Octavius M. Spencer at Cologne, Germany.

Assignments to Hospital Ship

The U. S. Navy will place in commission the hospital ship *Mercy* about September 1, and the following medical officers have been assigned to duty on board:

Commander Abraham H. Allen.
Lieutenant Commander Martin Donelson.
Lieutenant Commander Alfred L. Clifton.
Lieutenant Commander Glenmore F. Clark.
Lieutenant Commander Robert T. Canon.
Lieutenant Irving E. Stowe.
Lieutenant (J. G.) Everett H. Dickinson.
Lieutenant (J. G.) William A. Strauss.
Lieutenant (J. G.) Lloyd R. Newhouser.

More Reserve Health Officers in Training

The U. S. Public Health Service has issued orders assigning the following physicians, all 1926 graduates, to active duty for training at the following hospitals:

Edwin W. Gates, U. S. M. H. no. 21, Stapleton, N. Y.
William H. Black, U. S. M. H. no. 82, Norfolk, Va.
George W. Buchanan, U. S. M. H. no. 21, Stapleton, N. Y.
Francis B. Hand, U. S. M. H. no. 19, San Francisco.
Edmund T. Lentz, U. S. M. H. no. 5, Chicago.
John R. Murdock, U. S. M. H. no. 19, San Francisco.
William W. Nesbit, U. S. M. H. no. 82, Norfolk, Va.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 24, 1926.

The Public Health

In the house of commons Mr. Chamberlain, minister of health, speaking of the immense drugging under the national health insurance scheme, suggested that it was possible that such measures as the purification of milk and the abolition of preservatives in food might rank in their effect on the maintenance and improvement of the health of the people above the tons of drugs and oceans of medicine that were being swallowed every year. The rate at which cancer was increasing was alarming. Last year the deaths from cancer in this country were 1,336 per million, a rate equivalent to the death of 50,000 persons in our population. It had been estimated that, out of every seven persons who reached the age of 30 in this country, one would die of cancer. He was able to give a more helpful account of tuberculosis, which ranked among the most curable of diseases. But one aspect of the problem gave him great concern—the number of persons who, having received beneficial treatment in sanatoriums, had returned to conditions that involved a recurrence of the disease. In this connection he called attention to the success of the experiment that was being carried out at Papworth, in Cambridgeshire. The village was entirely inhabited by tuberculous ex-service men and their wives and children, and the men were earning their living at industries under the constant care of the medical superintendent. The most remarkable feature of the experiment was that in this village, where every householder was tuberculous, the disease was unknown among the children. The experiment pointed the way to the mitigation or solution of a grave problem. Smallpox was rapidly increasing in this country. In 1922 there were 973 cases; in 1923, 2,500 cases; in 1924, 3,800 cases; in 1925, 5,300, and in the first six months of this year, 5,500. The disease was now present in a mild form, but in the past the mild form had coexisted with a severe form. If this form returned, some of those who fulminated against vaccination would rush to the vaccination officer. A good deal of alarm had been created by the very distressing after-effects of epidemic encephalitis. There had been some very painful cases of after-effects showing the moral changes. The disease appeared to be distinctly on the wane. In 1924 the number of cases was 5,039. In 1925 it came down to 2,635, and therefore he thought they were justified in drawing the conclusion that this complaint, which appeared so suddenly and developed so rapidly, had reached its maximum and was now passing away.

Cancer Research

The annual report of the British Empire Cancer Campaign, just issued, points out that the most striking feature is the fact that the cancer-producing tars and paraffins are largely those which have been heated in manufacture to a very high temperature. Something occurs at these high temperatures that effects a change in the substances subjected to them and endows them with the mysterious cancer-producing power. So far, no light has been thrown on the nature of this change. The workers at the Cancer Hospital—Drs. Leitch, Kennaway, Fry and their assistants—believe that they have disposed of the idea that the presence of one cancer protects against the growth of others. They have not, so far, been able to find any support for the virus theory of cancer causation as propounded last year by Dr. Gye. This theory has also recently been assailed by American workers. In treatment, efforts are being made to find some substance that will be lethal for the cancer cells but not for the normal cells of the body. There seems to be little in the idea that tar produces cancer because of, or by means of, the arsenic contained in it. The work at St. Mark's Hospital with relation to simple cancerous tumors is of great interest. Apparently cancer of the large bowel is usually preceded by the appearance of a large number of small and, in themselves, harmless little growths. At the Lister Institute, Dr. Lumsden has obtained an "antiserum" which has proved efficacious in causing cancers in rats to disappear. His work presents all sorts of new problems. It is not, unfortunately, possible to make any application of it, as yet, to human needs. Prof. R. T. Leiper has disposed once more of the theory of "cancer houses" even in its most scientific form. The theory was revived some time ago as the result of the discovery of Fibiger of Copenhagen that cockroaches played the part of host to a worm capable of causing cancer in rats. The cockroach as a carrier of agents of human cancer has been acquitted by Dr. Leiper.

Proposed International Union of Medical Organizations

A movement led by Dr. Fernand Decourt, president of the Union des syndicats médicaux de France, for an international union of medical organizations was discussed at a recent meeting of the council of the British Medical Association. The scheme arose out of a meeting of certain foreign representatives with the medical secretary of the British Medical Association. A letter was afterward sent by Dr. Decourt to the secretaries of medical organizations in various countries suggesting that such an international union might be formed to serve as a center of information, with a permanent secretariat, the council of such a union consisting of two members for each nation taking part. The subjects likely to be dealt with by the secretariat would be the various forms of state or other insurance, contract practice, control of the profession, medical ethics, medical benevolence, hospital questions, and the like. A preliminary meeting has been summoned in Paris, July 15-19, unfortunately at the time of the annual session of the British Medical Association. A list of representatives of fourteen countries was furnished as having already made adhesion. The object of the union would be to constitute a center of information and a means of liaison between the national medical groups in order that each of them might be enabled to profit by the experience of the others in the study of the numerous problems that concern physicians. There would be constituted international archives of information on the subjects mentioned above and similar matters, where each group would be able to get information according to its needs. An annual subscription of 20 Swiss centimes (about 4 cents) for each member of the organization coming into the union was suggested. It was stated that the American Medical Association, while agreeing that the idea might be very useful, had decided to postpone action until the proposal had been considered by the British Medical Association. A resolution was carried that the council accept in principle the desirability of the international association of medical organizations, and send representatives (or a representative) of the association to the meeting if the date is convenient, it being understood that the association reserves its liberty as to joining such a body until it knows the arrangements proposed.

Enlarged Models of Disease-Carrying Insects

A small but interesting collection of models of disease-bearing insects has been arranged by the British Museum (Natural History). Major E. E. Austen, the entomologist who has superintended the exhibition, points out that the total number of kinds of living insects at present recognized

has been estimated at not fewer than half a million, yet only a small fraction appears to be concerned in the spread of disease, either in man or in domestic animals. Among insects, the known disease carriers probably amount to fewer than sixty species, while of the ticks, the kinds proved capable of spreading disease scarcely reach a score. Owing to the small size of disease carriers among insects and ticks it is difficult, if not impossible, by exhibition of actual specimens alone to make their outward characteristics intelligible to the general public. On the other hand, drawings however well executed sometimes fail to carry conviction. A system of greatly enlarged models of representative species has therefore been adopted, the magnification employed ranging from 20 to 200 times linear (the last in the case of the male and female plague flea). The species represented include malarial, yellow fever and other mosquitoes; the tiny, midgelike carrier of sand-fly fever; a small, West African horsefly conveying Calabar swelling; two kinds of tsetse flies which carry the parasites causing tryanosomiasis and nagana; the house fly; plague fleas; the body louse; two forms of ticks, one of which affects man, the other domestic animals; and the itch mite. In the accompanying explanatory labels, technical terms have so far as possible been avoided. The models, which are of wax and wherever possible are accompanied by others showing the preliminary stages of the species represented, are the work of three gifted artists, Mrs. E. D. Blackman, Miss Grace Edwards and Mr. A. J. Engel Terzi, and have been constructed under the expert supervision of specialists on the staff of the museum; they are believed to form a series without rival elsewhere.

Nursing Home Abuses

The report of a select committee on nursing homes appointed by the government has just been published. Many abuses are found to exist. Matrons of nursing homes are often completely unqualified, and as there are frequently no qualified nurses in these homes, nursing is carried on by housemaids. Several cases have been reported in which the matron in charge is frequently drunk. In other cases there is no staff beyond the keeper of the home and perhaps her husband or a relative. Overcrowding is said to exist, even in some of the better class homes. Serious allegations were made as to the neglect of patients. Owing to the insufficiency or lack of qualification in the staff, patients, particularly of the senile chronic type, are left entirely to administer to their own wants, although often incapable of doing so. They frequently develop bedsores as the result of prolonged neglect. They are rarely washed. The bed linen is changed at infrequent intervals, even when soiled. The rooms are verminous. No adequate protection is taken to prevent dissemination of contagious or infectious diseases, and frequently patients are unable to obtain any assistance when they require it. The food is scanty and often unsuitable. Senile patients, practically put away in a cheap home by relatives who take little or no further interest in them, suffer great indignities, are very unhappy, and are too frightened to make any complaint.

Some important recommendations are made. It is proposed that legislation shall be prepared to set up a scheme for the registration and inspection by county and borough councils of all nursing homes. The committee recommends that the inspection shall be limited to the general suitability and organization of the home, and shall not embrace any inquiry into the medical records or private affairs of patients. Among other recommendations are that: the supervising authorities should have power to lay duties on a committee on which physicians and nurses should be represented; all types of nursing homes, including maternity homes, should be included, though certain publicly controlled institutions might be expressly excluded and certain charitable organizations might be exempted for definite periods; no home should be exempt on the ground that it is controlled by a physician, and appeals against refusal or cancellation of registration should be allowed to a referee appointed by the minister of health. It should normally be a condition precedent to registration that the matron or other person in charge of the nursing in any registered nursing home be a fully qualified nurse; and if and when nursing becomes a more popular and better paid profession, the extension of this condition to a certain proportion of the staff employed in the home will also become desirable.

PARIS

(From Our Regular Correspondent)

July 22, 1926.

The "Medical Week"

Following the example of Brussels, Paris celebrated from July 14-19 its "medical week," or "journées médicales," which proved a marked success. Prof. Fernand Widal served as chairman, Professor Balthazard as commissary general and Dr. Dujarric de la Rivière (of the Pasteur Institute) as general secretary. The opening session was held at 9 a. m., July 15, in the Grand Palais in the presence of the president of the republic and several ministers. The first address was delivered by Professor Calmette of the Pasteur Institute, who devoted an hour to the presentation of the discovery of his vaccine against tuberculosis. He set forth that, after two years of experimentation, a series of 11,208 new-born infants had received, during the first ten days after birth, three doses of the vaccine at intervals of two days, or, per dose, 6 mg. of bacillary culture grown on ox bile diluted with 5 per cent glycerin, containing a total of 240 million bacilli. These infants were, for the most part, the offspring of tuberculous parents and destined to be raised by their parents; that is to say, in a contaminated environment. The ordinary mortality under such conditions is in France 25 per cent for the first two years. In the children thus vaccinated, the mortality for the first two years was 0.9 per cent, the failures being attributed by Calmette to infants who became infected, during intra-uterine life, by sporular forms of the tubercle bacillus capable of penetrating the placenta, the reality of which has been demonstrated by the researches of Professor Arloing of Lyons.

Several papers were presented on that day and the days following, in the various hospitals and at the special meetings of learned societies, by Dr. Pauchet on the operative indications of neoplasms of the intestine; Dr. Dartigue, technic of sexual graft in atypical cases; Professor Sergent, lobar tuberculosis; Professor Teissier, treatment of smallpox and alastrim; Professor Marfan, feeding of weak and undernourished infants; Dr. Lereboullet, new method of antidiphtheritic vaccination; Dr. Lévy-Solal, early treatment of puerperal infection; Dr. Lortat-Jacob, cryotherapy in dermatoses; Professor Terrien, technic of removing foreign bodies from the eye; Professor Sicard, diagnostic and therapeutic uses of iodized sesame oil; Professor Lemierre, new indications for venesection; Dr. Pasteur Vallery-Radot, cutireaction in anaphylactic diseases and their treatment by intradermal injections of peptone; Prof. Marcel Labbé, insulin in the treatment of diabetes; Prof. Léon Bernard, antituberculosis hospital centers (assistance and prophylaxis); Dr. Lian, quinidine sulphate in the diagnosis and treatment of arrhythmias (with the telecardiophone allowing collective auscultation of patients at a distance by a group of listeners); Dr. Jules Renault, the constant ventilation of hospital wards occupied by young children; Dr. Lesné, clinical and experimental rickets, and Dr. Armand-Delille, therapeutic pneumothorax in tuberculous children, together with numerous operative demonstrations by surgeons in their respective ser-

vices (Prof. Jean-Louis Faure, Dr. Pauchet, Dr. De Martel and others). There were also lectures by foreign physicians, Professor Putti of Bologna on arthroplasty in infantile paralysis, Professor Graham (St. Louis) on cholecystography, and others.

There were 2,600 members enrolled at the convention. Among the forms of entertainment were: Opera performance in gala, a banquet at the cercle Franco-Americain, and excursions to Versailles, Berck-plage, Reims and various hot springs.

The exhibit of instruments, of diagnostic and therapeutic apparatus and of medical products, installed in the mezzanine and on the first floor of the Grand Palais, was the center of considerable interest. All the large firms of the city had exhibits of their products, and the booths stretched for a length of 2,500 meters. What attracted the most attention was the exhibit of the Service de santé militaire, which included a new type of field hospital, a new suspension system for ambulances designed to transport the wounded, and, above all, the sanitary airplanes. Two such planes of the type that has rendered such good service in the campaigns in Morocco and Syria were exhibited in the Grand Palais. Dr. Chassaing, who was the promoter of the sanitary airplane, Dr. Picqué of Bordeaux, and M. Julliot of the Aero Club of France gave lectures and demonstrations on the subject to the conventionists, and on the afternoon of Sunday, July 19, at the Bourget Aerodrome, those in attendance at the convention were invited to participate in several flights in sanitary airplanes.

The Disagreement Between the Medical Associations, or Syndicats

A serious controversy has separated into two camps the medical organizations *(syndicats)* of France. For many years, the Union des syndicats médicaux has been the one central organization by which were grouped the departmental societies, or *syndicats*, which constituted the general assembly, which met each year in Paris. The "Union" has acquired a large measure of influence, and its decisions have often been accepted by the national government. Its delegates have always been called on for their opinions in connection with the preparation of laws pertaining to the practice of medicine, industrial accidents, etc. Their delegates have been consulted in the elaboration of the fee schedule to be applied to the industrial insurance companies and to the mutual aid societies.

The process of drafting the proposed law for the organization in France of health insurance societies after the manner of Krankenkassen in Germany, and those that have been allowed to continue their existence in Alsace-Lorraine since its reannexation to France, has divided the medical organizations, or *syndicats*, and last year an open rupture ensued. The recalcitrants who separated from the union have established a rival organization under the name of "the federation." The proposed law pertaining to social insurance which the socialist deputies are endeavoring to impose appears, in truth, to be fraught with peril for the physicians. Many of the political elements in parliament regard it with distrust. It is based on a triple contribution of the state, the workman and the employer. The portion that the state will be required to pay is estimated at five billion francs annually, which is a terrifying sum in view of the present condition of the national budget, already overloaded with debts. As for the workmen themselves, their unions have already announced that they will not accept any proposal to retain a portion of their wages to be applied on social insurance, which will compel the employers to pay the amount that was to be exacted of the workmen, and will increase at once the prices of merchandise and raise the cost of living for the whole population.

This untoward project has been in course of preparation for three years, and no minister has had the temerity to carry it before parliament. However, a report of Senator Chauveau has been presented to the senate, which serves as a basis for the preparatory work already undertaken by the medical organizations, which concerns the fees that are to be established for medical visits, medical care and operations. The fees are said to be very low. They are to be imposed, however, by the Caisses d'assurances, or health insurance societies, which will become very powerful, and, as their clientele among the working classes will be dependent on these *caisses*, physicians are justly alarmed over the situation that faces them, especially those whose patients are derived mainly from the working classes.

The medical profession confronts at present two attitudes: (1) That of the Union des syndicats médicaux, a quasi-official organization, accustomed to treat with the public authorities and which has indicated a willingness to discuss the question of fees with the Caisses d'assurances and to submit a minimum schedule, and (2) that of a certain number of *syndicats* which refuse to enter into any discussion with the *caisses* and which declare that do to so would be tantamount to allowing themselves to be reduced to a wretched condition of slavery, an example of which is furnished by many of the physicians of Alsace-Lorraine, where this form of social insurance has been in force for the last twenty years or more. In Alsace-Lorraine, these *syndicats* assert, the *caisses* have reduced a good part of the physicians to mere wage earners, poorly paid and overworked. Even hospitals in many instances belong to or are under the control of the *caisses*, which furnish care of all sorts to their clientele without reference to the physicians. The medical profession of Alsace-Lorraine is thus divided into two groups, one harshly or even rudely treated by the *caisses* and merely able to exist, and another group which is independent of the *caisses* but which is compelled to renounce entirely all claims to patients among the working classes, which, in certain regions, constitute the chief source of income.

It is the unfortunate experience of Alsace-Lorraine that has caused a number of medical societies, or *syndicats*, especially in regions in which the working classes predominate, to refuse to negotiate with the *caisses d'assurances* and to demand that the whole medical profession shall do likewise, so that every physician may be free to demand of his patients among the working classes, even though members of the *caisses*, the remuneration that seems just in each case.

The Union des syndicats, or at least the majority of its members, entertained different views, and has persisted in entering into negotiations with the *caisses*. It seems to be influenced by the desire to preserve the old prestige of an organization which is almost official in character and whose opinions are always sought. The independence of the physician dealing with the workman insured in the *caisses* might seem to it a grave infringement on the authority of the Union des syndicats. It must be borne in mind that this opinion is shared chiefly by the physicians who have no patients among the working classes and who would not be likely to suffer from the demands of the *caisses*. As there appeared to be no chance of a compromise between the two parties, the rupture occurred and a dissenting "féderation" was formed.

The general assembly of the Union des syndicats médicaux, which was recently held in Paris, sought to bring about a reconciliation between the contending factions, knowing full well that it would lose much of its authority by the dissension. Two whole days were devoted to discussion, which at times assumed a violent form. It may be well to state that many members of the "union," while they have not severed their connection with that body, share nevertheless the opinion of the dissenters and demand that physicians

shall be allowed to determine their fees in each case. Finally it was decided to appoint a delegation of five members charged with the duty of reaching an understanding with another delegation of five members designated by the federation. But the federation demanded that the representatives appointed by the union be changed, and that members should not be allowed to serve who had already taken an open stand on the question; more particularly, M. Lenglet, the secretary general, assigning as the reason for their position that it would be easier to reach an understanding if the delegates chosen were less entrenched in their opinions. The assembly of the union refused to accept these conditions and would not disavow its secretary general, so that, for the time being, the two camps are resting in their positions. What makes an understanding difficult is the fact that the various medical organizations, or *syndicats*, view the question of social insurance from entirely different angles, depending chiefly on whether they represent regions in which the working classes predominate or not. The medical organization, or *syndicat*, of Paris and of the Seine, and the *syndicats* of other large cities, are not much interested in the controversy, regarding the maintenance of the position of the union as chiefly a question of prestige. But they seem to forget that the prestige of the union has been much impaired by the divisions in the medical profession.

ITALY

(From Our Regular Correspondent)

July 15, 1926.

Vital Statistics

According to information furnished by L. Manfredi to the *Rivista sanitaria siciliana*, the population of Italy has increased from 25,000,000 in 1862 to 42,000,000 in 1926, which is an augmentation of about 70 per cent in a little more than sixty years, and it is still increasing. However, earthquakes caused a loss of 100,000 lives; influenza in 1918 caused 400,000 deaths, and the war occasioned 560,000 deaths and a reduction in births of 1,500,000. The mortality, which in 1880 was 30, had been reduced in 1921 to 17 per thousand. The average length of life has increased, for of the persons born in 1880 scarcely 50 per cent reached age 35, while the persons born in 1919 will, according to calculations, attain an average age of 53.

Two New Institutions in the Psychiatric Field

The first Italian neuropsychiatric hospital, recently established at Arezzo, is housed in a new pavilion attached to the Manicomio Provinciale (psychopathic hospital). It will accommodate patients with organic nervous lesions in whom the mental faculties are not impaired. In Florence, in connection with the Humbert I Institute for Backward Children, a school in which backward children can pursue special courses and secure diplomas has been established.

The Call of Italian Scientists to South America

The head of the Argentine Republic has invited Prof. Vittorio Ascoli, director of the Clinica Medica in Rome, and Prof. G. Alessandrini, director of the bacteriologic institute of that university, to represent Italy at the medical congress to be held in Buenos Aires. The two scientists have already departed for Argentina, accompanied by Dr. Pozzi. They will speak at the congress on the results of Italian studies on malaria.

The First International Congress of Maternal and Infant Welfare

The international association of infant welfare held this year in Rome its first annual reunion. In addition to the members of the central association (Brussels), the following countries were represented: Italy, United States, France, Switzerland and Sweden. The congress accepted the proposal of Rollet to divide the assembly into a hygienic and a medicolegal section, to work, in the main, independently but to unite for the discussion of subjects of a general nature.

Before the hygienic section, Professor Roseo gave an account of the condition of children in the colonies, and spoke in favor of immigration of children in the colonies; more particularly, illegitimate children, with the object of favoring early acclimation and reducing the present high mortality of children, which is especially noticeable among illegitimate offspring. Dr. Del Piano (Rimini) and Professor Modigliani (Rome) were opposed to the idea, and set forth that reduction in the mortality of illegitimate children could be brought about by giving to mothers the means with which to recognize and raise their own children.

Prof. Rocco Jemma followed with a paper on familial prophylaxis against tuberculosis, in which he favored antituberculosis vaccination. Professor Delilles explained the benefits of the Calmette method of vaccination and disapproved the Grancher method. The assembly passed a resolution favoring in principle antituberculosis vaccination.

Professor Caronia discussed the prophylaxis of rickets, demanding improvement in hygienic and dietetic conditions and recommending special ambulatory consultation centers. Delilles praised the efficacy of ultraviolet rays. Moringer of Strasbourg recommended the general action of the sun. Jundell of Stockholm emphasized the value of cod liver oil.

The medicolegal section discussed the trades in which the morality of children appears particularly jeopardized and also the obligation of requiring the presumable father of an illegitimate child to pay the mother a fixed sum weekly or monthly.

Before the combined sections, Professor Valagussa of Rome explained recent Italian legislation (December, 1925, and April, 1926) for the protection of children.

The hygienic section then visited the Instituto di case popolari, the *Case dei bambini*, the ambulatory dispensaries, the consultation centers, the children's bathing establishment and the children's playgrounds. Thereupon, Professor De Sanctis presented before the combined sections a paper on the capacity of abnormal children for education. The conventionists then visited the exhibits.

Bismuth Salts in the Treatment of Ocular Syphilis

Before the Academy of Medical and Natural Sciences of Ferrara, Dr. Casati presented five cases of ocular syphilis in which he had employed bismuth salts. There were two patients with iridocyclitis, one with bilateral neuroretinitis, and two with heredosyphilitic parenchymatous keratitis. In all the cases, which presented a positive Wassermann reaction, a rapid cure was effected. During the treatment, no very serious accidents were observed. Examination of the urine was always negative. The injections were well borne even when given on alternate days. In the parenchymatous forms there was scarcely a trace of the disease after the bismuth treatment. According to the author, bismuth is especially effective in cases in which arsphenamine treatment (also combined with mercurials) had given negative or only slightly positive results. It does not have the contraindications of arsphenamine treatment and has a much more rapid therapeutic action.

Commemorative Ceremonies

At Spezia ceremonies were recently held in memory of Prof. Edoardo Bassini, the proponent of the well known method of operation in inguinal hernia.

The medicosurgical society of Pavia celebrated recently the fiftieth anniversary of the cesarean operation as proposed and performed by Prof. Edoardo Porro in the Clinica Ostetrica of Pavia.

BELGIUM

(From Our Regular Correspondent)

July 10, 1926.

The Brussels Medical Convention

The sixth session of the Brussels Journées Médicales was highly successful. A prominent feature was a vast international exposition of the arts and sciences as applied to medicine, surgery, pharmacy and hygiene.

Prof. J. Demoor presided at the convention. Maréchal Lyautey delivered an address on "La médecine au service de la colonisation." He referred to a telegram that he had sent during the Madagascar campaign to his commander, General Gallieni, as he entered the country of certain rebellious tribes among whom smallpox was raging: "If you can send me four more physicians, I will send back to you four companies." Marshal Lyautey emphasized the need of uniform action and central control, of medical supervision, and of economy. Colonial expansion has its dark sides, he continued, but, if anything justifies and ennobles colonization, it is the activities of the physician viewed as a mission and an apostleship.

Tuberculosis and the Schick Test

Before the Société belge d'études sur la tuberculose, Blankoff and Sander have presented the results of their researches on the Schick test as applied to 152 children (eighteen of whom were suffering from nontuberculous affections). The search for bacillus carriers was carried on at the same time. The authors noted an increased tendency to negative reactions in children gravely affected with tuberculosis. Persons suffering from grave tuberculosis often present a Schick reaction accompanied by marked hypothermia together with diminution of the local symptoms. While tuberculosis is not a contraindication to employment of the Schick test, it should not be accorded the same value that it would otherwise have.

The Draft of a Law on Physical Education

The minister of arts and sciences is planning to introduce in parliament a law pertaining to the physical education of youth. Instruction will be organized in the schools. Every commune must possess sufficient equipment for the schools and clubs. The latter would be expected in turn to place their quarters at the disposal of the state. Professors and instructors would be held responsible for the carrying out of the regulations, and efficient medical supervision and control are assured.

Surgery in Pulmonary Tuberculosis

Before the Société d'études sur la tuberculose, Dr. Toussaint has presented a study based on thirty-seven surgical interventions in cases of pulmonary tuberculosis. He has performed twenty-eight simple phrenectomies, five phrenectomies combined with resection of the scalenus muscle, two phrenectomies combined with a partial thoracectomy involving the second and third ribs, one partial thoracectomy involving the second and third ribs, and in one case block of the phrenic nerve by injection of cocainized alcohol. The author endeavored to obtain a combined procedure that would entail less shock than wide costectomy by attacking the bone, muscle and nerve barriers that oppose the retractility of the wound. Toussaint adds to this technic the resection of the long thoracic nerve which supplies the serratus anterior, the only essential inspiratory muscle accessible without causing functional disturbances in the movements of the shoulder.

A Medical Directory

The Société d'exploitation de Spa has published a volume entitled Annuaire médical de Belgique, des colonies et du Grand Duché de Luxembourg. The volume contains a complete list of the physicians, pharmacists and dentists in the countries named, including their consultation hours; also the names of all the hospital and sanitary establishments, policlinics, laboratories, clinics, homes for convalescents, colonies for children, etc.

A New Publication

The first issue of a new publication, the *Revue médicale belge*, has appeared. The new review contains abstracts of all medical articles, arranged according to subjects and printed on only one side of the page. The pages are perforated so that any page may be readily removed.

Medical Relations Between Spain and Belgium

Relations between Spanish and Belgian scientists have until recently scarcely existed. However, a committee for the promotion of a better understanding between the two countries has been formed. The chairmen of the respective Spanish and Belgian sections are both recipients of the Nobel prize, Spain being represented by Prof. Ramon y Cajal and Belgium by Prof. Jules Bordet.

Proposed Medical Tours

Its previous medical tours having proved successful, the *Bruxelles médical* is organizing for the near future the following three excursions: (1) a tour of the Canary Islands, to start from Antwerp and returning by way of Spain or Morocco, Aug. 30-Sept. 20, 1926; (2) a cruise of the ports of France with stops at Lisbon and Tangier, and (3) a cruise of the Orient for students of all the faculties.

BERLIN

(From Our Regular Correspondent)

July 17, 1926.

Medical Profession Wants Official Separate Recognition

The term "physician" is defined under the trade-regulation law. Forty-six years ago the convention of physicians passed resolutions favoring regulation of the granting and the withdrawal of the right to practice, definition of rights and duties, nomination of official professional representatives, and courts of arbitration and honor. The Reichstag supported the proposition, but it has never, in spite of urging, left the federal council. At the convention of physicians the last week of June in Eisenach, Dr. Stauder (Nuremberg) proposed regulation of physicians in Germany. By means of regulation, German physicians will be united and their problems, rights, duties and legal position will be defined. In this way the abilities of the German profession of physicians will be used in a right way for the health of Germany. The organization will have three parts: local associations, provincial assemblies and, as supreme head, a state assembly (Reichsaerzte-Kammer). Since several states, such as Prussia, during recent years have constituted assemblies of physicians, with large authority, it is thought that conditions are favorable for regulation and organization. It is anticipated that the few portions of the trade laws which concern physicians will be replaced with direct regulatory provisions.

Besides these motions, others were brought up for discussion. The leading idea of one proposal is: The profession of German physicians furnishes health service for the German nation. This occupation is not a trade with earning its only purpose but is imbued with the higher view of care of the individual and community health. It follows instructions on special practice, i. e., that in cases of urgent danger necessary help cannot be refused, that it will take part in the fight against epidemics over and above its legal duties, that intra-uterine life and the ability to reproduce will be preserved, if danger to the life of the mother does not prevent it. The regulations concerning medical practice must

protect the sick, and, if possible, eliminate conflicts between the physicians themselves. Treatment by letter or at long distance is not allowable, and care is to be taken concerning certificates and all medical evidence. Bills must conform to a fee scale, except that the paying capacity of the patient has to be taken into consideration. In indubitable urgent cases, the treatment should not depend on payment in advance. Physicians should not accept rebate, get practice through grant of benefit to others, or apply for positions that are not free to all physicians; they should conduct themselves so that the sick and the reputation of the profession will not suffer. When a patient wants a second physician, the physician in charge may not oppose; also, a consultation of two physicians with a third ought to be refused only for important reasons. A physician ought not to refuse help to another physician in urgent cases without important reasons. Expression of scientific, political or religious opinions free from objection will not be considered an infraction of the regulations. In special cases there will of course be disagreement about what is "free from objection." The propositions were accepted with few corrections at the convention of physicians.

Sex and Facial Characteristics

At the last meeting of the association for physiognomical studies, the head of the institute, Sanitätrat Dr. Hirschfeld, spoke on the subject of "Sex and Physiognomy." The well known sentence, that the history of the individual is written in his face, has in the normally developed man only relative value. The opinion that quantity and quality of the sexuality is related to the development of special types of faces or features is on precarious foundation, although in some cases it is correct. In early adolescence as in old age, the facial development of the sexes approaches each other to a great extent. As far as facial appearance is concerned, one can often be in doubt of the sex of a child, although at puberty the greatest differences exist.

A Special Department for Chronic Encephalitis in Göttingen

The first of June, a special station for patients with complications of epidemic encephalitis was opened in connection with the nerve clinic of the University of Göttingen. Only patients with mental disturbances will be accepted. The department is equipped both for studies of pathogenesis and etiology of encephalitis and for treatment of patients.

Marriages

HERBERT MYRON TOLFREE, Commander, U. S. Navy, to Mrs. Pauline Jones Kirkpatrick of Oakland, Calif., August 2.

THEODORE MCKEE TROUSDALE, Richlands, Va., to Miss Mabelle Lee Mason of Norfolk, at New York, July 3.

WILLIAM P. HOFFMAN, Davenport, Iowa, to Miss Marie Burnette of Lost Nation, at Davenport, May 18.

THOMAS HAROLD COPELAND, Bedford, Ohio, to Miss Edna Margaret Miller of Fairmont, W. Va., June 9.

MILETUS BROWN JARMAN, Richmond, Va., to Miss Jeannette Talbott Morris of Gainesville, Fla., June 28.

ALFRED R. SHANDS, JR., Baltimore, to Miss Elizabeth Prewitt of Lexington, Ky., in July.

GRANVILLE ALLISON BENNETT, Iowa City, to Miss Lenora Webber of Davenport, May 15.

LILLIAN HERALD SOUTH, Louisville, Ky., to Judge H. H. Tye of Williamsburg, Ky., July 9.

HARVEY W. SEARS, Bluffs, Ill., to Miss Jessie Austin of Jacksonville, June 27.

HENRY J. RAVOLD to Miss Jessie Gordon, both of St. Joseph, Mo., July 15.

Deaths

Samuel M. Wylie ✠ Paxton, Ill.; Chicago Medical College, 1878; in 1906 was a delegate from the American Military Surgeons to the International Medical Congress at Lisbon, Portugal, and in 1910 was a delegate from the American Medical Association to the annual meeting of the British Medical Association at London; aged 72; died, July 18, of acute dilatation of the heart.

George Gillespie Buford, Hardy, Ark.; Vanderbilt University Medical Department, Nashville, 1880; formerly professor of nervous and mental diseases, University of Tennessee College of Medicine, Memphis; at one time on the staffs of the Memphis City and Baptist Memorial hospitals, and the Shelby County Poor and Insane Asylum, Memphis; aged 72; died, July 10, of heart disease.

Luther Haymond, Clarksburg, W. Va. (licensed, state board of health, 1903); formerly member of the state legislature; Spanish-American and World War veteran; aged 50; died suddenly, July 17, at the Kessler-Hatfield Hospital, Huntington, of cerebral hemorrhage.

James Lucian Batson, Bessemer, Ala.; Vanderbilt University Medical Department, Nashville, 1900; member of the Medical Association of the State of Alabama; aged 47; died, July 16, at the South Highland Infirmary, Birmingham, of cholecystitis.

Francis Augustine Finnegan, Lowell, Mass.; Medical School of Harvard University, Boston, 1911; member of the Massachusetts Medical Society; formerly on the staff of St. John's Hospital; aged 42; died, June 1, at Worcester, of coronary thrombosis.

Charles Richard Sanderson, Long Beach, Calif.; Keokuk Medical College, 1892; mayor of Montrose, Iowa, 1899-1901, and Waynesville, Ill., 1912-1913, 1919-1920; served during the World War; aged 59; died, July 13, of diabetes mellitus.

Frederick G. Grisier, Columbia City, Ind.; Western Reserve University School of Medicine, Cleveland, 1875; past president and secretary of the Whitley County Medical Society; aged 73; died, July 24, of carcinoma of the stomach.

Anthony J. Burger, Brooklyn; University of Pennsylvania School of Medicine, Philadelphia, 1883; formerly county coroner; aged 65; died, July 21, at St. Catharine's Hospital, following an operation for carcinoma of the rectum.

Edward Stokely Smith, Hodgenville, Ky.; Louisville Medical College, 1879; Bellevue Hospital Medical College, New York, 1883; member of the Kentucky State Medical Association; aged 67; died, July 26, of septicemia.

Thomas Franklin Robinson, Spring Hill, Ala.; University of Nashville Medical Department, 1880; member of the Medical Association of the State of Alabama; aged 70; died, April 14, at Mobile, of heart disease.

Benjamin Harrison King, Granite City, Ill.; Barnes Medical College, St. Louis, 1904; president of the Madison County Medical Society; member of the Illinois State Medical Society; aged 46; died, July 31.

Guy Hastings Greeley, Merrimack, N. H.; Baltimore Medical College, 1891; member of the New Hampshire Medical Society; aged 58; died, May 30, at his home in Thornton's Ferry, of angina pectoris.

James Guy Pratt, Brooklyn; University of Pennsylvania School of Medicine, Philadelphia, 1901; for many years on the staff of the Brooklyn State Hospital; aged 47; died, July 4, of heart disease.

William Albert Lockett, Amarillo, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1872; Civil War veteran; aged 86; died, June 26, of chronic interstitial nephritis.

Charles E. Scott, Warren, R. I.; University of Montreal Medical Faculty, Montreal, Que., Canada, 1900; state senator, 1908-1909; formerly health officer; aged 54; died, July 7, of cerebral hemorrhage.

Oscar Stansbury ✠ Chico, Calif.; University of Maryland School of Medicine, Baltimore, 1873; for several years member of the state board of health; aged 74; died, July 19, of coronary thrombosis.

Robert G. Timms ✠ Chicago; Loyola University School of Medicine, Chicago, 1917; for five years member of the city health department; aged 47; died in July, of angina pectoris and arteriosclerosis.

William Major Collins, San Francisco; New York Homeopathic Medical College and Hospital, 1905; aged 45; died, July 9, at the Wakefield Hospital, of general peritonitis, following appendicitis.

Edgar Hadley ✱ Montrose, Colo.; Medical College of Indiana, Indianapolis, 1900; on the staff of St. Luke's Hospital; aged 59; died in July, of injuries received in an automobile accident.

Thomas E. White ✱ Fitzgerald, Ga.; Eclectic Medical Institute, Cincinnati, 1905; president of the Ben Hill County Medical Society; aged 47; was killed, June 10, in an automobile accident.

Robert Le Baron, Pontiac, Mich.; University of Michigan Medical School, Ann Arbor, 1861; member of the Michigan State Medical Society; aged 88; died, July 15, of heart disease.

William Harrison Ballard, Pasadena, Calif.; Bennett Medical College, Chicago, 1886; University of Illinois College of Medicine, Chicago, 1889; aged 69; died, July 7, of angina pectoris.

Clifton M. Kelley, Winchester, Ind.; Medical College of Ohio, Cincinnati, 1881; aged 70; died, July 15, at the Randolph County Hospital, of myocarditis and chronic nephritis.

Charles J. Rosengren ✱ Buffalo; University of Buffalo Department of Medicine, 1897; aged 52; died suddenly, June 25, of pulmonary thrombosis, following acute sinusitis.

William Stokes Sterrett, Marseilles, Ill.; Rush Medical College, Chicago, 1894; member of the Illinois State Medical Society; aged 59; died, July 28, following a long illness.

Richard J. Hogan, Glens Falls, N. Y.; Albany Medical College, New York, 1887; aged 61; died, March 31, at the Troy (N. Y.) Hospital, of pneumonia and heart disease.

Robert B. Wilson, Ellensburg, Wash.; State University of Iowa College of Medicine, Iowa City, 1881; also a druggist; aged 70; died, May 25, at Tacoma, of angina pectoris.

Moritz Bloch, New York; University of Vienna, Austria, 1875; member of the Medical Society of the State of New York; aged 81; died, July 20, of cerebral hemorrhage.

William Thomas Seeley ✱ Kendrick, Idaho; University of Illinois College of Medicine, Chicago, 1910; aged 53; died, July 4, of injuries received in an automobile accident.

Albert Durrant Watson, Toronto, Ont., Canada; Victoria University Medical Department, Toronto, 1883; L.R.C.P. Edinburgh, Scotland, 1883; aged 67; died, April 3.

Almond M. Hill, Genoa, Ill.; Eclectic Medical Institute, Cincinnati, 1868; Civil War veteran; formerly mayor of Genoa; aged 81; died, July 17, of heart disease.

Milton R. Trumbower, Monett, Mo. (licensed, Missouri, 1898); member of the Missouri State Medical Association; aged 75; died, recently, of diabetes mellitus.

Beauman Newton Keith, Lepreau, N. B., Canada; Medical Department of the University of the City of New York, 1882; aged 69; died, March 25, of heart disease.

William Horace Wickham, Sycamore, Ohio; Columbus Medical College, 1882; president of the Sycamore State Bank; aged 69; died, July 18, of heart disease.

Charles Coleman Renkirt, Cincinnati; Miami Medical College, Cincinnati, 1893; aged 69; died, July 8, at Riverside, Calif., of pneumonia and heart disease.

Frederick George Phillips ✱ Providence, R. I.; Columbia University College of Physicians and Surgeons, 1902; aged 49; died, July 25, of acute cholecystitis.

Frederick Otto Blaine, Copeland, Kan.; Medico-Chirurgical College of Kansas City, 1903; aged 49; died, July 11, at St. Anthony's Hospital, Dodge City.

Patrick Henry Molloy, Lexington, Ky.; Medical College of Ohio, Cincinnati, 1880; Spanish-American War veteran; aged 77; died, July 21, of myocarditis.

Wesley Asberry Smith, Hearne, Texas; University of Louisville (Ky.) School of Medicine, 1884; aged 73; died in July, of cirrhosis of the liver.

S. R. Fielden, Knoxville, Tenn. (licensed, Tennessee, 1889); aged 63; died, July 17, at the Riverside Hospital of acute suppurative cholecystitis.

Raphael R. Lyons, Crowley, La.; Medical Department University of Louisiana, New Orleans, 1862; Civil War veteran; aged 87; died, June 24.

Harmon H. Whitson, Slaughters, Ky.; University of Nashville Medical Department, 1857; aged 92; died, July 21, of cerebral hemorrhage.

William M. Larrabee, Waupun, Wis.; Rush Medical College, Chicago, 1876; aged 73; died, March 7, at Biloxi, of cerebral hemorrhage.

Walter W. Buchanan, Detroit; University of Illinois College of Medicine, Chicago, 1883; aged 60; died, recently, of cerebral hemorrhage.

James Arthur Van Horn ✱ Hope, N. M.; Memphis Hospital Medical College, 1893; aged 54; died, July 14, of pulmonary tuberculosis.

James S. Daniels, Omro, Wis.; Hahnemann Medical College and Hospital, Chicago, 1877; aged 85; died, June 15, of chronic myocarditis.

Charles A. Bourland, Greenville, Ky.; Vanderbilt University Medical Department, Nashville, 1868; aged 81; died, July 12, of uremia.

William Datcher, La Grange, Ga.; Meharry Medical College, Nashville, Tenn., 1898; aged 65; died, recently, of chronic nephritis.

Jean Philippi Leduc, Marieville, Que., Canada; University of Montreal Medical Faculty, 1874; aged 73; died, March 20, of heart disease.

J. H. Green, Hartsfield, Ga. (nongraduate); aged 57; died, July 15, at the Archbold Memorial Hospital, Thomasville, of pyonephrosis.

Wilber F. Sharrer, Delphi, Ind.; College of Physicians and Surgeons, Keokuk, 1874; aged 83, died, July 19, of carcinoma of the cheek.

Albert L. McLeod, Westerville, Ohio; Cincinnati College of Medicine and Surgery, 1873; aged 75; died, May 12, of heart disease.

George Minges ✱ Dubuque, Iowa; Bellevue Hospital Medical College, New York, 1878; aged 71; died, July 20, of tuberculosis.

Leonard Herbert Vincent, Sisters, Ore.; Hering Medical College, Chicago, 1912; aged 56; died in June, of cerebral hemorrhage.

James R. N. Smith, Milltown, Maine; Medical School of Maine, Portland, 1867; aged 81; died, June 9, of cerebral hemorrhage.

George Stratton Farquhar, Newark, Ohio; Miami Medical College, Cincinnati, 1879; aged 71; died, July 21, of cerebral hemorrhage.

J. P. Mathews, Santa Anna, Texas; Missouri Medical College, St. Louis, 1882; aged 68; died, recently, of tuberculous meningitis.

Charles D. Hulbert, Westerlo, N. Y.; Rush Medical College, Chicago, 1902; aged 56; died suddenly, June 7, of lobar pneumonia.

Joseph W. Hall, Cincinnati; Medical College of Ohio, Cincinnati, 1899; aged 53; died, May 22, of acute dilatation of the heart.

William Edward Storey, Kemptville, Ont., Canada; University of Toronto Faculty of Medicine, 1901; aged 49; died recently.

Hollis O. Sarber, Rockford, Mich.; Eclectic Medical Institute, Cincinnati, 1881; aged 69; died, May 15, of diabetes mellitus.

Robert H. Towles, Houston, Texas; Washington University School of Medicine, Baltimore, 1873; aged 70; died, recently.

John Luther Baehr, Winslow, Ark.; Pennsylvania Medical College, Philadelphia, 1861; aged 90; died, May 6, of senility.

Anthon Ellis Russell, Carrabelle, Fla.; Tennessee Medical College, Knoxville, 1895; aged 51; was drowned, March 12.

J. R. Smith, Munday, Texas (licensed, Texas, under the Act of 1907); aged 70; died, March 30, of heart disease.

Daniel Anderson, Custer, S. D.; Eclectic Medical Institute, Cincinnati, 1879; aged 70; died, April 8, of heart disease.

James G. Eberhart, Comer, Ga.; Philadelphia College of Medicine and Surgery, 1854; aged 92; died, June 27.

Charles C. Wiley, Pittsburgh; College of Physicians and Surgeons, Baltimore, 1875; aged 72; died, in June.

James Delmage Wilson, London, Ont., Canada; Trinity Medical College, Toronto, 1875; died, April 28.

Joseph A. Jenkins, Joliet, Ill.; Chicago Homeopathic Medical College, 1899; aged 59; died, July 6.

Reimer Nicel Nintzel, Oshkosh, Wis.; University of Kiel, Germany, 1865; aged 90; died, July 8.

John S. Goode, Myrtle, Miss. (licensed, Mississippi, 1882); aged 70; died recently, of nephritis.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

NAFTALAN NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. PUCKNER, Secretary.

Naftalan, according to the Ft. Dearborn Drug & Chemical Co., Louisville, Ky., is manufactured by E. Stiewe, Magdeburg, Germany, and is "a preparation of Russian mineral oils containing about 4 per cent of soap, in the form of an ointment." No further information was furnished the Council in regard to the composition of Naftalan, nor was any evidence submitted to show that the composition and uniformity of the preparation is controlled. It is claimed that

NAFTALAN

(Lanaftal-Stiewe)
Magdeburg, Germany

For the treatment of
Acute and Chronic ECZEMA
And all diseases of the Skin

After an absence of seven years from the American market, due to war conditions, this valuable product is again obtainable. Supplied in 1 lb., ½ lb. and ¼ lb. containers.

Literature with complete information mailed upon request

Sole Distributors for the United States and Canada

FORT DEARBORN DRUG AND CHEMICAL CO., INC.

214 W. Main St. Louisville, Ky.

Please mention the Western Medical Times

Naftalan soothes and relieves pain, prevents inflammation, is antiseptic, protects injured parts from infection, stops itching and irritation, and has extraordinary healing effect. It is stated that Naftalan is principally used in the treatment of acute and chronic eczema, and all forms of skin diseases.

In the advertising of the Ft. Dearborn Drug & Chemical Co. it is claimed that Naftalan acts like Ichthyol and the claims made for the preparation are closely similar to those which were formerly employed in the exploitation of Ichthyol for various skin diseases.

The Naftalan advertising consists largely of citations from clinical reports. From these are quoted the following:

"On burns of the first and second grade, Naftalan (Stiewe) proved a wonderful remedy for relieving pain, cooling the wound, and preventing inflammation, so that in this instance it is far above all other known medicaments. The effect of Naftalan (Stiewe) was further found excellent, for the treatment of the different skin diseases and especially in the cases of acute and chronic eczema, pityriasis, geborrhoea [*sic*], capillitii, and psoriasis where it gave extraordinary healing effects even in cases where every other medicament recommended by the profession failed."

"In case of rheumatism and gout, the patients obtained instant relief of the terrible pains, and by constantly using Naftalan (Stiewe) became completely healed."

No evidence was submitted in substantiation of these uncritical claims and they are inherently improbable. Naftalan is unacceptable for New and Nonofficial Remedies because the information in regard to its composition is unsatisfactory and indefinite and because the therapeutic claims advanced for it are unwarranted.

Correspondence

IODINE IN TUBERCULOSIS

To the Editor: — In regard to the communication of Dr. E. A. Peterson (THE JOURNAL, June 26, p. 1995), in which he states that he doubts that any authentic experiments have ever been done to show that iodine breaks down a lung in a tuberculous animal or in man, the following facts may have some bearing:

Several years ago Jobling and Peterson, while working on ferments, showed that iodine had the power of saturating the unsaturated radicals of fatty acids, and that when these fatty acids were acting as antitryptic ferments, saturation of these unsaturated bonds tended to reverse the reaction and liberate trypsin. When it is considered that a tubercle has a high percentage of fatty acids in its composition and that the probabilities are that these fatty acids are acting as antitryptic ferments, the importance of iodine in releasing the trypsin by saturating these unsaturated fatty acids can readily be seen. In fact, it has been proved that iodine is found in quite a noticeable amount in the tubercles when given to a tuberculous animal. Theoretically, it is by its action in this manner that iodine has come to occupy the position it does as a therapeutic agent in breaking down granulomas.

Recently H. W. Butler treated guinea-pigs with potassium iodide and tincture of iodine (*Proc. Soc. Exper. Biol. & Med.* **23**:219). Two pigs were given four drops of potassium iodide by mouth, and one was given one drop of the tincture of iodine daily for fourteen days. The control pig was not treated.

Twenty-one days after the period of treatment, the guinea-pig receiving the tincture of iodine died, and necropsy revealed a generalized extreme tuberculous condition. Forty-five days after treatment was discontinued, the animals receiving the potassium iodide died, and at necropsy a generalized tuberculosis of extreme character was found. Sixty days after the last treated pig had died, the control pig died. Necropsy revealed a generalized tuberculosis, but much less marked than in the treated pigs. The pig treated with the tincture of iodine lived fifty-two days. Another pig treated with potassium iodide lived seventy-five days, and the other, seventy-six days. The untreated tuberculized control pig lived 135 days.

While this series is not very large, it may have some weight. I have had a striking experience in two cases of tuberculosis in which iodine was given.

A white, American boy, aged 18, presented himself with several chronic ulcers on his body, stating that he had been treated by various methods, but none of them seemed to have any effect on the ulcers. Aside from the skin condition, the most outstanding symptom was a rather severe cough. He gave a history of having worked in a thrashing crew the previous summer. While doing this work, he became ill from inhaling so much dust and was confined to bed for several days. He gradually recovered his health with the exception

of the cough. It was some months after this that the skin condition arose. Cultures from the skin lesion gave an unquestionable growth of sporotrichosis, and repeated cultures of the sputum gave the same organism. Roentgen-ray and physical examinations of the chest showed considerable chronic involvement, but both the roentgenologist and a rather well known tuberculologist were of the opinion that the sporotrichosis was the disease of the lung and that there was very little evidence of tuberculosis. This patient was given a saturated solution of potassium iodide in ascending doses. For a time his health improved markedly, but after about six weeks or two months, although the skin lesions became greatly improved, his general health began failing rapidly. Cultures of the sputum at this time failed to show any of the sporotrichosis organisms, but numerous tubercle bacilli were found in the stained specimen. There was a rapidly fatal course of pulmonary tuberculosis, and the boy was dead in six months.

A white woman, aged 38, well nourished, presented herself complaining of a chronic cough. She had a 4 plus Wassermann reaction. Roentgen-ray and physical examination of the chest were interpreted by the roentgenologist as being probably syphilis of the lung. She was given antisyphilitic treatment consisting of arsphenamine followed by mercury and later by increasing doses of potassium iodide. After the potassium iodide was given for a few weeks, her health began failing rapidly. At this time the sputum, which had always been negative at previous examinations, showed numerous tubercle bacilli in stained specimen. She was taken off the iodide immediately. However, her health continued to fail. She gave up medicine and took up Christian science, but died a little less than eight months from this period.

The question has occurred to me that with the loss of standing of "patent medicine" among the laity as the result of educational propaganda and pure food laws, could this have any effect on the control of tuberculosis? It is a known fact that potassium iodide was a main factor in some of the most widely sold "patent medicines," and that until within one or two decades ago, it was a widespread custom for the patients who became chronically ill to use these "patent medicines." In Nostrums and Quackery there are several illustrations of the tracing of testimonials from persons as being cured by these various agents, and almost without exception they are all found to be dead.

Scott R. Edwards, M.D.,
Allison Hospital, Miami Beach, Fla.

[Comment.—The reasoning is sound, although, as the writer admits, the evidence cited is scanty. It has been recognized clinically for many years that iodine and its compounds have an effect on tuberculous tissues. Following the administration of iodine, patients with tuberculosis are likely to experience an increase in symptoms, particularly expectoration. Moreover, a lighting up of the process can be detected by the increase in physical signs. Advantage has been taken of this fact in the diagnosis of tuberculosis when the physical signs are doubtful. In such cases, after moderate doses of iodine, râles develop in the affected region, and tubercle bacilli may be found in cases in which the sputum was previously negative. Needless to say, the procedure is attended with some danger.

It is generally believed that iodine lights up sluggish tuberculous processes by enhancing the absorption of granulation tissue. However, there has been no direct, conclusive experimental proof for this belief. Cantacuzène (*Ann. d. l'inst. Pasteur* **19**:699, 1905) reported that the absorption of fat-free tubercle bacilli and tuberculous tissue in guinea-pigs was aided by the daily administration of potassium iodide, the iodine salt apparently stimulating the phagocytic property of the macrophages. E. F. Hirsch (*J. Infect. Dis.* **15**:487, 1914) was unable to confirm this. Lydia DeWitt was unable to verify the opinion that tuberculous granulation tissue possessed special reactivity, for she injected compound solution of iodine into a number of guinea-pigs having advanced tuberculosis, and found it no more toxic for these than for normal guinea-pigs. She (Wells, DeWitt and Long: The Chemistry of Tuberculosis, Baltimore, Williams and Wilkins Company, 1923, pp. 407-414) has summarized the literature on this point and on the therapeutic action of iodine in tuberculosis.

In two experiments on the value of iodine, DeWitt fed tuberculous guinea-pigs increasing amounts of iodine in daily doses of from 10 to 50 mg. The control pigs of one set lived 42, 135 and 147 days after inoculation, and all died of generalized tuberculosis. The treated pigs of the same set lived longer, the duration of life being 116, 137, 180, 196, 212, 379 and 459 days. All died with generalized tuberculosis, in some cases less marked than in the controls. In another set, more severely infected at the outset, the controls lived 45, 69, 84, 86, 86 and 117 days, all showing severe generalized tuberculosis, while the treated pigs lived about the same length of time; viz., 58, 77, 78, 91, 95 and 100 days. The degree of disease was about the same as in the controls. Her conclusion on the basis of her own and other investigations was that "experimental investigation of iodine as a chemotherapeutic agent has as yet given little proof of its value or encouragement for the hope that it may prove a real chemotherapeutic agent in tuberculosis."

Clinical observation, on the other hand, indicates an effect of iodine on tuberculous tissue. Opinion is divided as to whether this is favorable or unfavorable. Undoubtedly, much depends on the dosage employed, a fact that is probably responsible for the divergent opinions on the matter. More work is needed to reconcile clinical and experimental observations.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INHERITANCE OF DEAFNESS

To the Editor:—Has a normally developed and intelligent young man, the brother of three deaf mutes and three normal brothers and sisters, any moral right to become a father? The three mutes are going through college and will graduate.

M.D.

Answer.—A young man with normal hearing who has three deaf mute brothers is just as likely to have children born deaf as is one of these deaf brothers. A man with a prospect of this sort should consider carefully the question of having children. Even if he has a normal hearing child, the offspring of this child are likely to be deaf. The desire to have children is a normal instinct, but under circumstances of this sort it is a much better plan to adopt normal children rather than run the risk of propagating a defect which constitutes a serious handicap.

BLIND SPELLS AND HEADACHES FROM MIGRAINE

To the Editor:—Kindly give any and all information you may have on the cause of "blind spells" or the wavy scintillating subjective phenomena of the eyes, followed by headaches and frequently by vomiting. Could many years ago attributed these spells to eyestrain, but this has never been accepted by the profession. Please give all information and cite literature.

M.D., California.

Answer.—From the rather sketchy description of the phenomenon, it may be assumed that the ocular prodromals of migraine are intended. Such ocular prodromals may assume the form of scintillating scotomas, of hemianopias, of tubular visual fields, of fogged or diminished vision, or even of complete temporary amaurosis or blindness. As a rule, the ocular prodromals last from three to fifteen minutes and then disappear completely, to be followed in from ten to thirty minutes by the migraine headache, with or without nausea and vomiting. There has never been recorded any permanent visual defect subsequent to the ocular prodromals of a migraine. The cause of this phenomenon seems to lie in a spasmodic contraction of the arteries of the retina, the loca-

tion and extent of the contraction determining the character and extent of the phenomenon. In two cases seen during the prodromal attack, the retinal arteries and especially the macular arteries were contracted to mere threads. A complete discussion of the subject may be found in the American Encyclopedia of Ophthalmology (**10**:7694, 1917). Since that time, little has been added to the ophthalmic literature on that subject with the exception of a few single case reports.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS. Colorado: Denver, Sept. 13. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY. Colorado: Denver, Sept. 13. Sec., Dr. H. W. Loeb, 1402 So. Grand Blvd., St. Louis, Mo.

ARIZONA: Phoenix, Oct. 5. Sec., Dr. W. O. Sweek, Phoenix.

COLORADO: Denver, Oct. 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

IDAHO: Boise, Oct. 5. Commissioner of Law Enforcement, Mr. F. A. Jeter, Boise.

ILLINOIS: Chicago, Oct. 5-7. Supt., Regis. and Education, Mr. V. C. Michels, Springfield, Ill.

MINNESOTA: Minneapolis, Oct. 5-7. Sec., Dr. A. E. Comstock, 636 Lowry Bldg., St. Paul.

MONTANA: Helena, Oct. 5-7. Sec., Dr. S. A. Cooney, Helena.

NEW HAMPSHIRE: Concord, Sept. 9-10. Sec., Dr. Charles Duncan, Concord.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 20-23. Chief, Professional Exams. Bureau, Mr. Herbert J. Hamilton, State Education Building, Albany.

OKLAHOMA: Oklahoma City, Sept. 14-15. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, Oct. 7-8. Sec., Dr. B. U. Richards, Providence.

UTAH: Salt Lake City, Oct. 5. Director, Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

WISCONSIN: Basic Science Board, Madison, Sept. 18. Sec., Dr. M. F. Guyer, University of Wisconsin, Madison.

WYOMING: Cheyenne, Oct. 4-6. Sec., Dr. G. M. Anderson, Cheyenne.

Minnesota April Examination

Dr. A. E. Comstock, secretary of the Minnesota Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, April 6-8, 1926. The examination covered 15 subjects and included 80 questions. An average of 75 per cent was required to pass. Thirty-one candidates were examined, all of whom passed. Nine candidates were licensed by reciprocity and 7 by endorsement of their credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1919)	90.2
University of Illinois College of Phys. and Surgs.		(1925)*	87.2
University of Kansas School of Medicine		(1921)	87.9
University of Michigan Medical School		(1924)	89
University of Minnesota Medical School	(1925) 88.5, (1926) 90, 90.3, (1926)† 87.5, 87.6, 87.7, 88, 88.4, 88.5, 89, 89, 89, 89.5, 89.9, 89.9, 90.3, 90.8, 91.4	(1925)†	86.8, 89.9
Washington University School of Medicine		(1920)	88.9
University of Pennsylvania School of Medicine		(1924)	88.9
Vanderbilt University School of Medicine		(1924)	86.1
University of Manitoba Faculty of Medicine		(1917)	88.3
University of Munich, Germany		(1925)‡	90
University of Oslo, Norway		(1924)‡	88.6
Medico-Chirurgical Institute, Stockholm, Sweden		(1916)‡	80

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Cooper Medical College, San Francisco		(1905)	California
Northwestern University Medical School		(1914)	N. Dakota
Rush Medical College		(1915)	Iowa
University of Illinois College of Phys. and Surgs.		(1925)	Illinois
University of Michigan Medical School		(1895)	Iowa
University of Minnesota Medical School		(1910)	N. Dakota
Creighton University College of Medicine		(1918)	Nebraska
University of Nebraska College of Medicine		(1925)	Nebraska
University of Texas Department of Medicine		(1923)	Texas

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Rush Medical College		(1925, 2)	N. B. M. Ex.
University of Michigan Medical School		(1924)	N. B. M. Ex.
Cornell University Medical College		(1924)	N. B. M. Ex.
Jefferson Medical College of Philadelphia		(1917)	N. B. M. Ex.
University of Pennsylvania School of Medicine		(1924, 2)	N. B. M. Ex.

* This candidate has finished his medical course and will receive his M.D. degree on completion of a year's internship in a hospital.

† These candidates have finished their medical courses and received their M.B. degrees, and will receive their M.D. degrees on completion of a year's internship in a hospital.

‡ Verification of graduation in process.

Medical Economics

EVERY STATE IN THE REGISTRATION AREA BEFORE 1930*

It is a pertinent question as to just why the American Medical Association should be asked at this particular time to assist in completing the registration area for births and deaths. It is for the very sufficient reason of the material aid it has rendered in the past in developing the present registration area and because of its expressed belief in the value of vital statistics as the basis for medical and social research.

Lest we forget what has gone before, a glance over the recorded annals of this association will give us the inspiration to complete the task before us.

Twenty-three years ago—to be exact, in May, 1903—the Association passed resolutions:

> That the American Medical Association heartily commends the action of Congress in promoting the adoption of complete and uniform systems of registration of vital statistics in the United States and congratulates the American Public Health Association and the United States Census Office on their useful and effective cooperation for this purpose.
>
> That the American Medical Association strongly urges on the state medical societies that special committees be appointed to advocate and secure the passage of satisfactory registration laws in the states that do not at present possess them, that county societies support and aid in the execution of such laws as far as possible, and that physicians individually throughout the United States endeavor to promote the accuracy and value of mortality statistics by giving clear and definite statements of causes of death on certificates of death.

These resolutions followed very closely on the action of Congress in establishing the census office on a permanent in place of a decennial basis. The resolution of Congress referred to in the resolutions of the American Medical Association and which was approved by the President, Feb. 11, 1903, contained among others the following preamble:

> WHEREAS, The registration of births and deaths with information on certain points is essential to the progress of medical and sanitary science in preventing and restricting disease and in devising and applying remedial agencies, . . .

It is not inappropriate to note that we find prominent among those who urged these resolutions the names of Vaughan and McCormack, who will always be honored in the memories of all men; therefore, what the Association may do today becomes a reiteration of our belief and pledge made a generation ago. These expressed convictions have lost nothing but gained much in their significance with the passage of the years. This interval of time has not only marked a marvelous advancement in preventive medicine; it has also witnessed the adoption of vast plans for social welfare. The extension of our educational programs, of child labor laws, of mothers' pensions, of the treatment of juvenile delinquents, are just a few of the many activities of the government which today are a recognized basis of social welfare.

The single item of age on a birth certificate is the hinge on which hangs the wise administration of these functions. So, too, the massed information recorded on a million death certificates every year challenges alike the laboratory and every investigator in preventive research.

It is particularly fitting that this subject be again considered at this time for the reason that this meeting is held in the South, and the Southern states are the ones at present without adequate registration requirements—of the fifteen states outside the birth registration area, eleven are distinctly in the Southern group, and of the seven without adequate death registration, four are in the same group. It is not too much to say that the eyes of the United States are today focusing on this very area of our country as the land of marvelous opportunity.

* Official communication from the Bureau of the Census.

The South has labored for many years under the widespread impression in the minds of the other people that life in that locality was short, uncomfortable and decidedly uncertain. But yellow fever has been conquered; malaria is being pushed to the background, and hookworm and indolence are passing out hand in hand. It only remains for the South to complete her renaissance and show to the world at large that, in addition to every gift of nature, she possesses every resource contributed by science.

There is no mystery about the details of registration, and all but three of our forty-eight states, in response to the appeal made years ago, have perfectly adequate laws for the accomplishment of registration. Therefore, the groundwork has been laid; but indifference on the part of those responsible for this registration, coupled with the inadequate appropriations or the hesitancy on the part of those responsible for the enforcement of the law to invoke its penalties, are the factors responsible for the existing conditions.

It need hardly be recalled that this function of birth and death registration is essentially a state function. Similar to many other powers, it is entirely a matter of state initiative and state performance. Our national government can advise and assist in a limited way those states without adequate registration, but it is only too anxious to enroll within its generous requirements every state that qualifies.

In order that it may be appreciated that birth and death registration is a matter of supreme concern to others than the people of individual states, attention may be called to the fact that at the last annual meeting of the American Public Health Association a special committee was created for the promotion of birth and death registration. The constituent membership of that committee is worthy of note. On it are represented the American Public Health Association, our largest insurance companies, the U. S. Public Health Service, the U. S. Children's Bureau, the National Tuberculosis Association, the U. S. Chamber of Commerce and the U. S. Bureau of the Census. This committee by authority may be enlarged by the chairman. The American Medical Association will make a notable addition.

The completion of the registration area needs the stimulus of the collective and individual support of all physicians—not a passive acquiesence but an active interest. When the feeling that the registration of births and deaths filters from this organization to every one of its constituent bodies, and through these to its individual membership, then the words "registration area" will disappear from our literature and we shall have substituted therefor "national registration."

U. S. Census Bureau.

Plan for Community Health Service.—If a community's conscience is sufficiently aroused by some emergency, such as a severe epidemic, and there is created a desire to provide itself with reasonably adequate health service, what procedure should be adopted? The first logical step would be to arrange for a comprehensive and detailed public health survey. Health is a business enterprise of first importance to any community. No business, either public or private, can hope to determine its assets and liabilities without a thorough inventory. The public health survey is the only practical means by which a community can discover its essential health problems, and, by careful interpretation, develop a sound policy and well balanced program suited to actual needs. No attempt should ever be made to reorganize or plan a community health program on general principles or by endeavoring to expand further or develop some special activity that may, for the moment, seem urgent or popular. The ultimate success of local health service depends chiefly on a sound basic policy and a well balanced program with adequate funds and trained and experienced personnel under competent centralized authority.—Cumming, Hugh: *Pub. Health Rep.* 41:378 (Feb. 26) 1926.

Book Notices

PEDIATRICS. By Various Authors. Edited by Isaac A. Abt, Professor of Diseases of Children, Northwestern University Medical School, Chicago. Volume VIII and Index Volume. Cloth. Price, $10. Index volume gratis. Pp. 1102, with 388 illustrations. Philadelphia: W. B. Saunders Company, 1926.

The appearance of the eighth volume and the index of the Abt Pediatrics concludes the publication of a monumental contribution to this field. The volume under consideration is devoted largely to special topics. The section on diseases of the skin is edited by Dr. O. S. Ormsby, in association with other western dermatologists. This section comprises 267 pages, and constitutes a textbook in itself. It is furthermore fully illustrated, and should be of great value to pediatricians who are constantly consulted concerning eruptions of the skin of infants. Dr. George E. Shambaugh contributes the section on diseases of the ear in childhood, placing the most emphasis, naturally, on otitis media and mastoiditis. Every well informed pediatrician now realizes that many fevers, convulsions or other disorders of infancy are the result of middle ear infections. Dr. Casey A. Wood, now retired from practice and investigating the eyes of birds in Tibet, is responsible for the section on ocular diseases, which gives special attention to eye symptoms in infectious diseases, and to proper hygiene of the eye in education. One of the most instructive chapters is that on Hospitals for Infants and Children, by Dr. John M. Dodson and Richard E. Schmidt. This is illustrated with complete plans and photographs of some of the finest children's hospitals in the world, and takes into account the details of hospital management. Here again is a section that might well be made separate because of its unique character and practical value. The volume is concluded with sections on the medicolegal aspects of the care of infants, on tumors, on encephalitis and on animal parasites. As has been said previously, the arrangement of the system is somewhat illogical. This was occasioned perhaps by the difficulty of securing, editing and publishing material from such a widely distributed group of authorities. This lack of systematic arrangement is obviated to a large extent by a publication of an index of 250 pages, which, if properly used, makes references to any topic a relatively simple matter.

TABULAE BIOLOGICAE. Herausgegeben von C. Oppenheimer and L. Pincussen. Ed.: W. Junk. Band I. Reine und physiologische Physik, physikalische Chemie und biologische Anwendungen. Paper. Price, per set of four volumes, $24. Berlin: W. Junk, 1925.

This is the first volume of what will eventually be a four volume work, covering data in every field of biologic science. The entire book consists of tables selected from numerous sources. They make reference simple in that they assemble under one cover material that might otherwise have to be sought in numerous textbooks. The first volume is devoted largely to mathematics, physics and mechanics, but with many tables of primary medical interest; for example, one section on physical optics, one on the anatomy and physiology of the eye, one on the physiology of the countenance, one on body temperature, and one on anesthesia. Subsequent volumes will include tabulated data on all the aspects of chemistry and physiology, including the composition and food values of various substances, immunity, and the biology of plants and animals.

DISEASES OF THE NEW-BORN: A Monographic Handbook. By John A. Foote, M.D., Professor of Diseases of Children, Georgetown University Medical School. Cloth. Price, $5. Pp. 231, with 85 illustrations. Philadelphia: J. B. Lippincott Company, 1926.

It is well known that the period of greatest infant mortality is during the first two weeks of life. Only by the dissemination of knowledge among physicians concerning the care and treatment of the new-born as well as that of the mother during the prenatal months can there be any hope for a reduction of the death rate within this period. It is to meet this need that this collection of papers has been published. Most of

the papers are written by the author, the others having been contributed by members of the faculty of the Georgetown University Medical School. The author points out that the volume is concerned only with the diagnosis and treatment of the disabilities most commonly seen in the new-born. Its scope is therefore somewhat limited. Bibliographic notes are appended to each chapter, and add to the value of the book. The papers are well illustrated, especially the one on diagnostic and therapeutic measures. The author might be criticized for illustrating the technic of superior longitudinal sinus injection in an infant without having shaved the hair about the area of injection. On the whole, the book will be found useful to many practitioners; but the student and those who wish more comprehensive data will be forced to turn to other sources.

LES MÉDICAMENTS CARDIAQUES. Par le Docteur L. Cheinisse. Paper. Price, 14 francs. Pp. 179. Paris: Masson et Cie, 1925.

In this rather small volume the author has attempted an account of the known cardiac remedies, their mode of action, indications and contraindications, methods of administration and doses. As is inevitable when so much ground is to be covered, there is frequently a lack of sufficient detail. Digitalis and strophanthus are covered quite fully, as is due to their position of importance. More attention is paid to the crystalline form of digitalis than in American textbooks, and to strophanthus and ouabain. It is this difference in point of view here and elsewhere, whether agreed with or not, that makes the book of value to American and English readers. Many of the remedies described are little used, or have been discarded in this country. Caffeine receives little attention and the other purine-body diuretics none, in spite of their known pharmacologic value in heart disease. Comparatively little attention is paid to much recent literature of importance, either clinical or experimental. References to the literature are inadequate or absent. The volume has a certain amount of interest, but does not have the value to the clinician or the student which more thoroughness and a more catholic point of view would give it.

A TEXT-BOOK OF PATHOLOGY. With a Final Section on Post-Mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M.D., LL.D., and T. Mitchell Prudden, M.D., LL.D. Thirteenth edition. Revised by Francis Carter Wood, M.D., Director of the Pathological Department, St. Luke's Hospital, New York. Cloth. Price, $10. Pp. 1354, with 828 illustrations. New York: William Wood & Co., 1925.

The review of the tenth edition of this book (THE JOURNAL, Dec. 12, 1914) took up four lines. At that time it seemed unnecessary to review at length a book so well known. The present edition, according to Dr. Wood, who revised it, is modified but little. Fundamental conceptions of pathology have not changed much, and there have been few contributions to morphologic pathology. The new edition does contain new material, however, on the reticulo-endothelial system, on infectious diseases, on lung abscess and on jaundice. New references also have been added. Dr. Wood has selected for inclusion in the work only a little of the vast material in physiologic and chemical pathology, most of which as yet has not been digested and correlated.

SELECTED ARTICLES ON BIRTH CONTROL. Compiled by Julia E. Johnsen. Cloth. Price, $2.40 net. Pp. 369. New York: The H. W. Wilson Company, 1925.

This is one of the Wilson handbook series and is a valuable thesaurus of the subject. After an introductory note by the compiler, the first article is a brief on the proposition: Resolved, that the dissemination of the knowledge and means of contraception should be made legal. The brief is divided into three parts, with many subheadings under each part. The first part consists of general propositions which occupy only one page; then there is a tabulation of the affirmative arguments, which goes through eleven pages; then a tabulation of the negative arguments, which goes through twelve pages. This brief gives one a broad and illuminating perspective of the whole subject. Following this is a bibliography of birth control literature, occupying forty-seven pages. The bulk of the volume is taken up by recent articles on birth control. These, as the brief, are arranged systematically under three heads: first, the general discussion of birth control, in which are found twenty articles; second, an affirmative discussion including twenty articles; third, a negative discussion including nineteen articles. These are well selected and represent most recent views on the subject. The book is as complete a presentation as seems possible in a moderate space. The beginner who wants to study the pros and cons of birth control can hardly find a better introduction to it, and the cognoscenti will find it a valuable work that gives them the last word up to 1925.

A SYSTEM OF CLINICAL MEDICINE. Dealing with the Diagnosis, Prognosis, and Treatment of Disease for Students and Practitioners. By Thomas Dixon Savill, M.D. Seventh edition. Cloth. Price, $9. Pp. 1004, with 180 illustrations. New York: William Wood & Co., 1925.

The latest edition of this well known English work follows the plan originally adopted by its author. Disease is approached much as it must be approached at the bedside. The chapter on diseases of the heart and pericardium will serve as an example. In this section, following a sketch of the physiologic anatomy concerned, the real subject is taken up. Part A gives as the cardinal symptoms of heart disease in general, breathlessness, dropsy and cyanosis. To these, other symptoms are added, which, along with the three cardinal symptoms are briefly discussed. Part B deals with the physical examination, and special methods of investigation such as the use of the electrocardiograph. Data have thus been collected by which to arrive at a classification of the disease found, its diagnosis, prognosis and treatment, which are the subjects of part C. Agnes Savill signs the preface to the present edition, and credits a corps of able contributors with much of the necessary revision and rewriting. In the various editions, the attempt has been made to condense and excise so as to prevent the book's becoming cumbersome. Therefore, one does not expect completeness to be a striking feature of a work that combines so many different kinds of information as does this book.

THE SECRETION OF THE URINE. By Arthur R. Cushny, M.A., M.D., LL.D. Second edition. Cloth. Price, $5.50. Pp. 283, with 39 illustrations. New York: Longmans, Green & Co., Ltd., 1926.

This edition was completed and in press before the sudden death of its author, and it represents his final word on the problem of the physiology of the secretion of urine. It is an exhaustive statement of the evidence for and against the "modern theory," with an extensive bibliography, and as such is invaluable for investigators and others who wish to be fully informed as to the present state of knowledge in this difficult field in physiology. One might wish that the monograph had been allowed to end there, for the final brief chapter on nephritis and other renal disorders is too superficial to be of much value, and detracts somewhat from the standard of the rest of the work. The summary dismissal of the work of Ambard and his followers on page 263, for example, is unwarranted by the facts and might better have been omitted. Except for this inadequate chapter, there is little reference to the pathologic and clinical aspects of the problem of the secretion of urine.

TROUBLES DES ÉCHANGES NUTRITIFS; PHYSIOLOGIE-PATHOLOGIE-THÉRAPEUTIQUE. Volumes 1 and 2. Pr. Ch. Achard, Professur de clinique médicale a la Faculté de médecine de Paris. Paper. Price, 110 francs. Pp. 1220, with illustrations. Paris: Masson et Cie, 1926.

This is a monumental compilation of existing data on the physiology, pathology and therapy of diseases of metabolism. The author uses the phrase "diseases of metabolism" in its widest sense; for example, the question of achlorhydria and hyperchlorhydria are dealt with in the chapter on mineral metabolism. The author shows familiarity with the extensive literature in the field, both scientific and clinical, and important papers are cited as footnotes in the text. The presentation is clear and logical. It is also, on the whole, quite accurate and critical; in fact, as accurate and critical as one may reasonably expect, when the data of this immense

field are being presented and evaluated by a single man. According to the author, preparation of the monograph was begun fourteen years ago; and the monograph bears internal evidence of conscientious labor. The section on diseases of mineral metabolism alone comprises 356 pages. In most cases the author does not attempt to state, as in fact no one can at present state with certainty, where metabolic disturbances are primary syndromes and where they are merely symptoms of a disturbance primarily of nonmetabolic character. It is a useful and valuable contribution to the medical sciences.

MODERN METHODS IN THE DIAGNOSIS AND TREATMENT OF HEART DISEASE. By Francis Heatherley, M.B., B.S., F.R.C.S., Superintendent Heart Clinic, Manchester. Second edition. Cloth. Price, $3.75. Pp. 269. New York: William Wood & Co., 1926.

As noted in the review of the first edition, this book does not deal with laboratory diagnosis. It is strictly clinical, and the "modern methods" are not the methods of the laboratory but of thought and approach. Laboratory investigation and clinical observation have greatly clarified and simplified our knowledge of heart disease, and it is this modern view and its application to the daily work of the practitioner with which the volume deals. In this edition a chapter on blood pressure has been added characterized by the same sound sense that distinguishes the entire text. It is still to be regretted that there is not a section devoted to the influence of infection, not only in the etiology but also in the diagnosis, prognosis and treatment of heart disease. The author, in commenting on this omission in the introduction, states that his work among pensioners has given him too little opportunity for acquiring sufficient knowledge of the subject. He could be assured, however, that his readers would be very willing not only to have the benefit of his own knowledge of the subject, but the benefit of his sense of proportion in considering and reviewing the opinions of others. In an appendix is given the text of a leaflet used in the Manchester Heart Clinic for the instruction of those suffering from functional heart disorder, which should be helpful to the physician who has to deal with these cases. A list of books appended for reference could be improved by a critical revision resulting in a few omissions. Bridging the gap between the teaching of less than a generation ago and that of today, the volume is of especial value to the practicing physician. This value is increased by its clarity and by the perspective with which the subject is treated.

EXPERIMENTAL PHARMACOLOGY AS A BASIS FOR THERAPEUTICS: A Text-Book for Students and Physicians. By Dr. Hans H. Meyer, Professor of Pharmacology, University of Vienna, and Dr. R. Gottlieb. Translated by Velyien E. Henderson, Professor of Pharmacology, University of Toronto. Second edition from the seventh revised German edition. Cloth. Price, $7. Pp. 656, with 89 illustrations. Philadelphia: J. B. Lippincott Company, 1926.

Since its original publication in 1910, this work has been recognized as a classic textbook in pharmacology. It is constructed with the human body and its functions primarily in mind, rather than various drug substances classified either by botanic groups or by chemical composition. It begins logically with the actions of drugs on nerve endings, and proceeds through the various systems of the body to final chapters on the pharmacology of inflammatory processes, specific actions on the causes of diseases, and the mode of action of drugs. The revision of the book has taken into account the 1926 U. S. Pharmacopeia and the 1914 British Pharmacopeia, which dosages are given in the discussions. The book is marred to some extent by the inclusion of quite a few Germanic expressions.

RADIUM: ITS THERAPEUTIC USES IN GENERAL PRACTICE. By G. H. Varley, M.D. Cloth. Price, $1.75. Pp. 103. New York: Oxford University Press, 1926.

After a brief discussion of the physics of radium and its method of use, the author presents case reports indicating the results that may be achieved. The book is a suggestive work of much value to those who avail themselves frequently of the qualities of radium in the treatment of disease.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits.

LOCAL ANESTHESIA IN OTOLARYNGOLOGY AND RHINOLOGY. By James Joseph King, A.B., M.D., Assistant Surgeon in Otology, New York Eye and Ear Infirmary. With Supplement on the Toxic Effects of Local Anesthetics, containing the complete reports of the various committees of the American Medical Association made to the Therapeutic Research Committee of the Council on Pharmacy and Chemistry. Edited by Emil Mayer, M.D., Chairman, Research Committee on Local Anesthesia. Preface by Robert A. Hatcher, M.D., Professor of Pharmacology, Cornell Medical College. Cloth. Price, $5. Pp. 205, with 21 illustrations. New York: Paul B. Hoeber, Inc., 1926.

Most complete and up to date monograph available on use of local anesthetics in otolaryngology.

PSYCHOLOGICAL MEDICINE. A Manual on Mental Diseases for Practitioners and Students. By Sir Maurice Craig, C.B.E., M.A., M.D., and Thomas Beaton, O.B.E., M.D., M.R.C.P., Senior Assistant Physician and Physician to Out-Patients, Bethlem Royal Hospital. Fourth edition. Cloth. Price, $6. Pp. 437, with 25 illustrations. Philadelphia: P. Blakiston's Son & Company, 1926.

New and completely revised edition of standard British work.

LABORATORY OUTLINES IN BACTERIOLOGY AND IMMUNOLOGY. By John F. Norton, Ph.D., Associate Professor of Bacteriology, The University of Chicago, and I. S. Falk, Ph.D., Assistant Professor of Bacteriology, The University of Chicago. Cloth. Price, $2. Pp. 114. Chicago: University of Chicago Press, 1926.

Guide for instructors and students outlining course followed at the University of Chicago.

THE MIND OF THE NEGRO AS REFLECTED IN LETTERS WRITTEN DURING THE CRISIS, 1800-1860. Edited by Carter G. Woodson, Ph.D., Editor of the Journal of Negro History. Cloth. Price, $5 net. Pp. 672. Washington, D. C.: Association for the Study of Negro Life and History, Inc., 1926.

A selection of letters written by intellectual negroes during the Civil War period.

CLINICAL PEDIATRICS. By John Lovett Morse, A.M., M.D., Consulting Physician at the Children's, Infants' and Floating Hospitals, Boston. Cloth. Price, $9 net. Pp. 848, with 180 illustrations. Philadelphia: W. B. Saunders Company, 1926.

Well written, conservative presentation of practical pediatrics as taught and practiced in Boston.

LA CYSTOGRAPHIE. Étude radiologique de la vessie normale et pathologique. Par H. Blanc et M. Negro, du Service Civiale (Hôpital Lariboisière, Paris). Préface de G. Marion. Paper. Price, $1.60. Pp. 189, with 108 illustrations. Paris: Masson & Cie, 1926.

Technic and atlas of appearances following radiologic study of the urinary bladder.

POLITZER'S TEXT-BOOK OF THE DISEASES OF THE EAR. For Students and Practitioners. Revised by Milton J. Ballin, M.D., Ph.B., Attending Oto-Rhino-Laryngologist, Bronx Hospital, New York City. Sixth edition. Cloth. Price, $10. Pp. 776, with 302 illustrations. Philadelphia: Lea & Febiger, 1926.

A standard text slightly edited and revised.

CHEMISTRY OF FOOD AND NUTRITION. By Henry C. Sherman, Ph.D., Sc.D., Mitchill Professor of Chemistry, Columbia University. Third edition. Cloth. Price, $3.25. Pp. 636, with 20 illustrations. New York: The Macmillan Company, 1926.

Comprehensive and reliable guide to necessary fundamental knowledge of food substances.

A EPIDEMIA DA FEBRE TYPHOIDE DO ANNO DE 1924 NA CIDADE DA BAHIA. Pelo Dr. Genesio Pacheco. Paper. Pp. 69, with illustrations. Bahia, 1925.

CONTRIBUCION AL ESTUDIO DE NUESTRA PATOLOGIA: Tripanosomiasis Centro-Americana & Enfermedad Segovia-Peralta. Por Jose Ignacio Hernandez M. Paper. Pp. 112. San Salvador, 1925.

AMERICAN MEDICAL AND SANITARY RELIEF IN THE RUSSIAN FAMINE, 1921-1923. By Henry Beeuwkes, M.D., Medical Director American Relief Administration, Russian Unit. American Relief Administration Bulletin, Series 2, No. 45. Paper. Pp. 128, with 101 illustrations. New York: American Relief Administration, 1926.

BIENNIAL REPORT OF THE LOUISIANA STATE BOARD OF HEALTH TO THE LEGISLATURE OF THE STATE OF LOUISIANA 1924-1925. Paper. Pp. 699. New Orleans, 1926.

Medicolegal

Charitable Hospital Held Liable for Burning of Patient

(Tribble v. Missionary Sisters of the Sacred Heart (Wash.), 242 Pac. R. 372)

The Supreme Court of Washington, in affirming a judgment in favor of the plaintiff, says that he, having been severely burned by an aluminum bottle of hot water while he was still under the influence of an anesthetic after having been operated on while a patient in a hospital conducted by the defendant, a corporation, sued the defendant, alleging negligence in its care of him and negligence in the selection and retention of the person assigned to take care of him. The hospital had what were called probationers, student nurses and graduate nurses. The plaintiff's testimony showed that about the time he regained consciousness a probationer discovered that the bottle of hot water had been left in the bed, and, on taking it out, exclaimed that she had forgotten to take it out. Later on, the same day, on observing the extent of the injuries caused by the bottle, she remarked that she would "get the devil for that." On the other hand, a student nurse testified that when the plaintiff was put in his bed she removed two bottles of hot water, but did not know another one had been left in the bed; did not know who put the bottles in the bed; that the probationer was not in the room when the plaintiff was taken back to it. Of course this dispute of fact as to who was the plaintiff's attendant was for the jury.

Though the point was strongly at issue in the pleadings and in the trial of the case, the court is disposed to the view, on consideration of all the proof, that the hospital was maintained and operated as a charitable institution. Merely because an institution receives or exacts compensation from those desiring its privileges to the extent of their ability to pay does not necessarily deprive the institution of its character as a charitable one. It is the settled rule in the state of Washington that a charitable institution is not liable for torts committed by its servants against a patron of the institution, in the absence of a showing that it failed to exercise reasonable care in the selection of the servant. Ordinary care in the selection of servants implies and demands that degree of diligence and precaution which the exigencies of the particular service reasonably require. Admitting the purpose and advisability of using one or more bottles of hot water to increase the lowered circulation of a patient due to an operation, it is nevertheless highly important that a bottle of hot water capable of doing harm should not be left in such a position in the bed that a patient may be injured by it. The situation requires more care if the patient is unconscious.

It was urged that the exclamations and admissions of the probationer were unworthy of belief, in view of the testimony of the student nurse; but the latter's own testimony showed that she was only a pupil nurse, and that she neglected also to remove the hot water bottle that caused the injury. The probationer did not testify, nor was her absence explained. These were all matters for the jury; so also as to the testimony of the officer of the defendant who employed the servants. She alone had charge of and performed that duty, and in the very nature of her testimony it was in many important particulars, if not generally, insusceptible of contradiction. She was, of course, an interested witness. The weight and credibility of such evidence is for the jury.

Procedure for Revocation of License and Review

(Grisso v. Board of Medical Examiners (Calif.), 242 Pac. R. 912)

The District Court of Appeal of California, first district, division 2, in affirming a judgment in favor of the defendant sustaining a demurrer to a petition for a writ of review, says that the petition alleged that the section of the state medical practice act under which the petitioner's license was revoked was unconstitutional; but the power of the board of medical examiners under this section has been repeatedly upheld. The petitioner also asserted that his action in filing with the county clerk of the county of Alameda a certificate provided for by section 2466 of the civil code of California that he was the sole owner of "Bohannon Cancer Institute," and was doing business under that name, did not constitute a violation of the state medical practice act. A similar contention was made in *Berry* v. *Alderson*, 59 Cal. App. 729, 211 Pac. 836, but the court sustained the action of the board in revoking the license.

One of the grounds of the demurrer was that the petition did not state facts sufficient to warrant the granting of the relief asked. Section 14 of the state medical practice act as amended makes provision for the revocation by the board of medical examiners of licenses to practice medicine, outlines the procedure on such revocation, and sets forth the causes for revocation. The facts appearing in the petition for a writ of review indicated that the board acted according to the provisions of the act, and that the petitioner was regularly brought before the board for trial. He was a physician and surgeon, licensed by the board, and over whom it had jurisdiction. A hearing was had, and evidence supporting the charge was adduced at the hearing. On the application for a writ of review, the inquiry of the court need go no further; its powers are limited.

The petition set forth that a partial hearing was had in July, 1923, at the city and county of San Francisco, but that the matter was continued to a subsequent meeting of the board at Sacramento, when and where the hearing was concluded. The petition was filed in the superior court in and for the city and county of San Francisco. Section 14 of the medical practice act, as amended, provides that the holder of any certificate which has been revoked by the board may appeal to the superior court of the state in the county or city and county in which such suspension or revocation was made. The defendant board contended that, as the license was revoked in Sacramento, the petitioner's only remedy was an appeal to the superior court there because of the foregoing provision. But the provision for appeal contained in the medical practice act is unconstitutional, and certiorari or writ of review is the proper remedy. Had the demurrer raised that question alone, it should have been overruled.

Prohibited Testimony After Death of Patient

(Watkins et al. v. Watkins et al. (Miss.), 106 So. R. 753)

The Supreme Court of Mississippi, division A, says that the contestant of an alleged will made in 1918 offered as a witness a physician to testify as to his knowledge of the mental condition of the testator, including such knowledge as the physician had acquired while treating the testator as his patient from 1918 up to the time of the latter's death. This testimony was offered on the theory that the contestant, as the sole heir at law of the deceased, and as the administratrix and personal representative of the deceased and the estate, could waive the privilege extended under the provision of the code that

> All communications made to a physician or surgeon by a patient under his charge or by one seeking professional advice are hereby declared to be privileged, and such physician or surgeon shall not be required to disclose the same in any legal proceeding, except at the instance of the patient.

The court below refused to permit the offered testimony to be introduced, and this court thinks that this question has been settled adversely to the contention of the contestant by prior decision of this court. Again, on the theory that the testimony of the physician would not have tended to tarnish the reputation or discredit the testator, but, on the contrary, would have been to his credit, the contestant sought to bring this testimony within the reservation or supposed qualification found in the language of the court in *McCaw et al.* v. *Turner et al.*, 126 Miss. 260, 88 So. 705, to the effect that the right to waive the privilege must be limited to the patient, unless the manifest reason and obvious purpose of the statute would be sacrificed by adhering to a literal interpretation of its language. However, in view of the later decisions of the court, it is doubtful whether any such qualification is now recognized; but, whatever may at that time have been in the

mind of the court as justifying a departure from a literal interpretation of the language of the statute, it was not the circumstance that the proffered testimony does not tend to discredit the deceased. Were this made the basis for a qualification of the language of the statute, to determine the admissibility of the proposed testimony would usually involve a judicial inquiry into the nature and character thereof, and in *United States F. & G. Co.* v. *Hood*, 124 Miss. 548, 87 So. 115, it was expressly held that the evidence of a physician ought not to be received before the court, and it is error for the court to proceed on the idea that the judge and the public may hear the statement of the physician in such a case, though it be excluded from the jury. It is clear that no error was committed in excluding the testimony in question. Nor does the court find error in that, after the physician had testified that he could segregate in his mind the knowledge which he acquired about the condition of the testator from having been his physician from that acquired from social contact with him, the physician was permitted to testify to what he had learned about him from this social contact, and to give his opinion, based thereon, that he was of sound mind.

Furthermore, the court holds that the testimony of a physician, as an expert, in answer to a hypothetic question, based on the testimony of lay witnesses, as to the mental capacity of a testator, is not objectionable on the ground of privilege, although the witness had, at a time prior to that in question, been the testator's physician.

On Instructions as to Prescriptions for Narcotics

(Boyd v. United States (U. S.), 46 Sup. Ct. R. 442)

The Supreme Court of the United States, in affirming a judgment which affirmed a conviction of violating the Harrison Narcotic Law, says that, in each of the counts on which he was convicted, defendant Boyd was described as a physician, registered as such under the law, and credited with paying the special tax required of physicians, and was charged with unlawfully dispensing—through his written prescription—a stated quantity of morphine sulphate to a particular person, in the absence of a written order from the recipient on an authorized form, and not in the course of professional practice only, but to enable the recipient to obtain, as actually was done, possession of that quantity of the drug contrary to law. The prescriptions as set forth were: To Annie Davis, an addict to the use of the drug for twenty-one years, 48 grains, August 2, 48 grains, August 9, and 40 grains, August 13, all in 1923; and to Frank O'Hara, an addict for eighteen years, 30 grains, August 18, 30 grains, August 24, and 30 grains, August 30, all in 1923.

In its charge to the jury the court said that the determinative question was whether the defendant issued the prescriptions in good faith "as a physician to his patients in the course of his professional practice only"; that, if they were issued in good faith, "for the purpose of curing disease or relieving suffering," he should be acquitted; and that if, on the evidence, that question was left in reasonable doubt, he should be given the benefit of the doubt and acquitted. There was more along this line, in the course of which the court said that it was admissible for the defendant in his professional practice to prescribe the drug either for "the curing of morphinism," or for "the relief of suffering from morphinism," if he did so in good faith, and that in determining the question of his good faith the jury should consider the quantity prescribed—whether it conformed to medical standards, and, if it was in excess of such standards, whether there was reason or occasion for the excess. Thus far the charge was in accord with what this court said in *Linder* v. *United States*, 45 Sup. Ct. 446, 268 U. S. 5, wherein prior decisions were reviewed and explained.

Further on in the charge the court indicated that it was not admissible for the defendant to issue prescriptions to a known addict "for amounts of morphine for a great number of doses, more than was sufficient for the necessity of any one particular administration of it." Complaint is now made of this. It appears ambiguous, and, if not taken with the rest of the charge, might be regarded as meaning that it never is admissible for a physician, in treating an addict, to give him a prescription for a greater quantity than is reasonably appropriate for a single dose or administration. So understood, the statement would be plainly in conflict with what this court said in the Linder case. But this court thinks that it could not well have been so understood in this instance. It did not stand alone, but was to be taken in connection with what preceded it, and also with what followed. At the conclusion of the charge, counsel for the defendant made no objection and took no exception to it, but simply asked the court to add the following, which was done:

> I am requested to say to you, gentlemen, that in determining whether or not the defendant in prescribing morphine to his patients was honestly seeking to cure them of the morphine habit, while applying his curative remedies, it is not necessary for the jury to believe that defendant's treatment would cure the morphine habit, but it is sufficient if defendant honestly believed his remedy was a cure for this disease.
>
> I instruct you that, if this is true, regardless of whether the course of treatment given by this defendant is a cure, the question is: Was he honestly and in good faith in the course of his professional practice and in the effort to cure disease issuing these prescriptions?

With that addition, the charge elicited no criticism or objection from the defendant, although there was full opportunity therefor. It evidently was regarded as consistent and satisfactory. Besides, in view of what was said in other parts of the charge, this court is justified in assuming that, had the court's attention been particularly drawn at the time to the part complained of now, it would have been put in better form. Certainly, after permitting it to pass as satisfactory then, the defendant is not now in position to object to it.

Medical Expenses Not Paid for Measures of Damages

(City of Fort Worth v. Jones (Texas), 278 S. W. R. 871)

The Court of Civil Appeals of Texas, in affirming a judgment for the plaintiff (Mrs. Jones) for damages for personal injuries, says that the defendant city complained of the testimony of a physician to the effect that he had not charged the plaintiff a penny, but that in his opinion $500 would be a very reasonable fee in such a case as this. He further testified that, if a judgment was secured against the defendant, he would expect his fee. The court does not think that any error was shown in the admission of this testimony as to the reasonable fee, although the physician had not charged such fee. The plaintiff pleaded that she had contracted to pay her physician the sum of $750, which she alleged to be a reasonable fee or charge for the services rendered by him and still to be rendered. Reasonable medical expenses are proper measures of damages in personal injury cases, whether they are paid for or not.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Colorado Springs, Sept. 13-18. Dr. Luther C. Peter, N. E. Cor. Chestnut and 20th Streets, Philadelphia, Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Chicago, Sept. 20-22. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.

American Climatological and Clinical Association, Philadelphia, Sept. 27-28. Dr. A. K. Stone, Auburn Street, Framingham Center, Massachusetts, Secretary.

American Electrotherapeutic Association, Atlantic City, Sept. 8-11. Dr. Richard Kovacs, 223 E. 68th Street, New York City, Secretary.

Colorado State Medical Society, Colorado Springs, Sept. 21-23. Dr. F. B. Stephenson, 460 Metropolitan Building, Denver, Secretary.

Idaho State Medical Association, Sandpoint, Sept. 2-5. Dr. J. N. Davis, Kimberly, Secretary.

Indiana State Medical Association, West Baden, Sept. 22-24. Mr. T. A. Hendricks, Hume-Mansur Building, Indianapolis, Executive Secretary.

Kentucky State Medical Association, Frankfort, Sept. 20-23. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Lansing, Sept. 14-17. Dr. F. C. Warnshuis, Powers Theatre Building, Grand Rapids, Secretary.

Missouri Valley, Medical Society of the, Council Bluffs-Omaha, Sept. 15-17. Dr. Charles Wood Fassett, 115 East 31st St., Kansas City, Mo., Sec'y.

Nevada State Medical Association, Reno, Sept. 24-25. Dr. H. J. Brown, Gray-Reid Building, Reno, Secretary.

Southwest, Medical Association of the, Kansas City, Mo., Oct. 5-9. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.

Wisconsin, State Medical Society of, Madison, Sept. 15-17. Mr. J. G. Crownhart, 153 Oneida Street, Milwaukee, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in North America for a period of three days. Foreign journals prior to 1921 and domestic journals prior to 1923 are not available. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

1: 393-526 (April) 1926

*Paravertebral Alcohol Block in Cardiac Pain. G. L. Swetlow, New York.—p. 393.
*Ventricular Tachycardia and Auricular Fibrillation. S. A. Levine and A. N. Curtiss, Boston.—p. 413.
Diagnosis of Pericardial Effusion: Physical Signs on Posterior Aspect of Thorax. L. A. Conner, New York.—p. 421.
Adherent Pericardium with Calcification. W. J. Stone, Pasadena, Calif.—p. 434.
Classification of Heart Diseases. I. A. E. Cohn, New York.—p. 442.
*Id. II. Etiology in Organic Heart Disease. J. Wyckoff and C. Lingg, New York.—p. 446.
*Digitalis Bigeminy. H. Gold and H. L. Otto, New York.—p. 471.
*Experimental Heart Disease. II. Effect of Aortic Regurgitation on Heart Weights. G. R. Herrmann, New Orleans.—p. 485.

Paravertebral Alcohol Block in Cardiac Pain.—In a group of eight cardiac patients suffering from attacks of severe precordial pain, who were treated by Swetlow by paravertebral alcohol injections of the dorsal root ganglions, prompt and satisfactory relief from pain was secured in every instance. The freedom from pain following a single injection has usually lasted several months. In one patient, who was reinjected after four months of relief, there has been a second period of comfort lasting several months. No complications were encountered, and no serious after-effects were seen.

Ventricular Tachycardia and Auricular Fibrillation.—The therapeutic problem in the case reported by Levine and Curtiss was difficult because, under full doses of digitalis, the condition remained uncontrolled and the patient grew worse. Constant administration of large doses of quinidine proved effective, inhibiting both the disturbance in the auricles and in the ventricles. As a result, a normal rhythm has been restored and the patient enabled to return to work.

Etiology of Organic Heart Disease.—One thousand and one cases of organic heart disease among adults are analyzed by Wyckoff and Lingg. About one fourth of the cases presented rheumatic heart disease, about two fifths arteriosclerotic, about one tenth syphilitic, and about one tenth heart disease of unknown origin; other factors, such as scarlet fever, hyperthyroidism, nephritis, etc., together, comprised less than one tenth of the total.

Digitalis Bigeminy.—An analysis made by Gold and Otto of a series of eighty-six patients with auricular fibrillation receiving digitalis shows that nearly all such patients at some time have premature contractions of ventricular origin. The prognosis in patients in whom digitalis bigeminy occurs is, in general, poor. But the evidence at hand does not justify the conclusion that susceptibility to bigeminy indicates grave prognosis beyond that obtained from the functional capacity of the heart.

Experimental Heart Disease.—Moderate degrees of cardiac hypertrophy were readily induced in dogs by experimental aortic insufficiency. Spontaneous endocarditis appeared in 20 per cent of the experimental aortic regurgitation dogs. Herrmann says that his results seem to indicate that not one but a number of factors are active in the production of cardiac hypertrophy.

American Journal of Obstetrics and Gynecology, St. Louis

11: 583-734 (May) 1926

Classification of Toxemias of Latter Half of Pregnancy. H. J. Stander and C. H. Peckham, Baltimore.—p. 583.
Case of Actinomycosis of Tubes and Ovaries. J. W. Draper and W. E. Studdiford, Jr., New York.—p. 603.
*Diverticulitis of Colon. J. F. Erdmann, New York.—p. 609.
*Oviduct Insufflation. A. J. Rongy, New York.—p. 616.
*End-Results of Operations for Uterine Prolapse. E. A. Bullard, New York.—p. 623.
*Infection of Abdominal Incision. C. MacFarlane, Philadelphia.—p. 630.
*Blood Pressure and Urinary Findings in Normal Pregnancies. F. A. Faught, Philadelphia.—p. 633.
*Passive Hyperemia Treatment of Chronic Cervicitis. G. L. Moench, New York.—p. 637.
Conduct of Labor After Cesarean Section. A. H. Gladden, Jr., New Orleans.—p. 642.
*Mechanics of Birth Injuries. J. W. Newman and W. E. Levy, New Orleans.—p. 645.
Obstetric Shock. E. L. Stone, New Haven, Conn.—p. 650.
*Ligation of Inferior Vena Cava. O. G. Pfaff, Indianapolis.—p. 660.
*Need for Urologic Department in Every Gynecologic Clinic. H. Halsted and L. Wilens, New York.—p. 664.
Large Fibromyoma of Cervix: Case. F. Christopher, Winnetka, Ill.—p. 668.

Diverticulitis of Colon.—Fifty-two cases of this condition are reviewed by Erdmann. He says that, in all acute cases operation should be done, although it is known that subsidence and cure of attacks occasionally takes place as in other infective processes. All chronic cases may be observed until obstructive symptoms show. The presence of diverticula in the intestine merits no greater attention than does the existence of the appendix or gallbladder, except that there may be many diverticula, but there is only one appendix and one gallbladder; therefore, ordinarily the chance of acute diverticulitis would be greater, but clinical evidence shows that diverticulitis is by far rarer than disease of the gallbladder or appendix.

Oviduct Insufflation.—Rongy has found oviduct insufflation of great diagnostic value in the case of patients who suffered from relative sterility or in whom a chronic pelvic infection was suspected. It is a safe procedure in properly selected cases. Indiscriminate application of it will lead to many complications. The practice, pursued by many physicians, of having this examination made in a roentgen-ray laboratory is strongly condemned by Rongy. Oviduct insufflation should be done by the experienced gynecologist only.

End-Results of Operations for Prolapse of Uterus.—The end-results of various operations for prolapse of the uterus done in 361 cases are analyzed by Bullard. The major preoperative symptoms in this series were backache and dragging sensations in the pelvis; 58 per cent of the patients complained of the dragging sensations, and 54 per cent complained of backache. About 95 per cent of the patients were cured by vaginal plastic surgery. The vaginal plastic work combined with ligament shortenings from above is satisfactory, perhaps, in cases of slight prolapse, but the careful fascial reconstruction by the vagina undoubtedly is responsible for the success. The Watkins operation has not been followed by enterocele, but there have been a considerable percentage of cases with bladder symptoms. The Mayo operation has been extremely satisfactory, except for an occasional enterocele. The vaginal hysterectomy by Bissell's technic has been most satisfactory.

Infection of Abdominal Incision.—In a series of 500 laparotomies reviewed by MacFarlane, there were thirty-five infected wounds, seventeen of which occurred in 113 patients operated on for pelvic inflammatory disease. Six of these infected wounds followed gross contamination with pus from rupture of tubo-ovarian abscesses during operation, while eleven occurred without such obvious contamination. Among 112 supravaginal hysterectomies for fibroid tumors of the uterus, wound infection occurred only six times. MacFarlane suggests to lessen the incidence of wound infection in the pelvic inflammatory cases by repeating the preoperative antiseptic precautions before closing the wound. This has been done in ten cases with two superficial infections.

Blood Pressure and Urinalyses in Normal Pregnancy.—Blood pressure and urinary findings in 100 cases of normal pregnancy observed in private practice are reported by Faught. Of 675 urinalyses, 309, or 44.1 per cent, showed albumin alone or with other urinary abnormalities. Of the total primiparas, 12 per cent went through their pregnancy without albumin being found in the urine, while 7 per cent showed albumin in all their urine examinations. Of the multiparas, 10 per cent showed no albumin, and 5 per cent

always had albumin in demonstrable quantity in their urine. Glycosuria occurred in 4.3 per cent of all specimens examined, being present most frequently in the sixth, seventh and eighth months. The percentage of glucose met was rarely over 1.5 per cent, the highest being 4.7 per cent, occurring once. The incidence of indican was slightly greater than glucose, occurring in 11.1 per cent of all specimens examined, frequently in conjunction with glucose. There is practically no difference in the average blood pressure values in the primipara, as compared with the multipara.

Passive Hyperemia Treatment of Chronic Cervicitis.—Moench has used the suction treatment of the cervix on over two hundred women with very good results in most instances, and improvement in every case, with the exception of about six.

Mechanics of Birth Injuries.—Newman and Levy assert that a large number, estimated to be as high as 75 per cent, of birth injuries may be avoided. The published statistics which tend to show the lowering of the fetal mortality rate are said to be misleading, as this reduction is due to better prenatal care, which eliminates deaths from toxemia and other preventable causes. Birth injuries are still responsible for an appalling number of fetal deaths, and reduction along this line can come only from proper obstetric teaching and practice.

Ligation of Inferior Vena Cava.—Pfaff reports the case of a woman who had borne a large abdominal cyst for some years without great discomfort. Ten days before coming into the hospital, while carrying stove wood, she collided with a post, receiving a sharp blow directly over the tumor; she fell, in pain and shock; the tumor suddenly became larger and the abdominal wall very tense and sensitive. A laparotomy was performed, and a ruptured vena cava was found and ligated. Slight swelling in the legs and thighs was noticed after about ten days; this was somewhat more noticeable after the patient was up and about; the condition soon cleared up entirely, however, and she has had no trouble since. Pfaff has collected reports of thirty-seven cases in which the inferior vena cava was subjected to surgical intervention. Nearly all of these patients were injured during the course of abdominal nephrectomies. In nineteen cases, total ligation of the cava was done, with six deaths; in seven cases, lateral ligation, with two deaths; in five cases, suture of the wounded vessels, no deaths; in six cases, forcipressure to the wounded vessels, no deaths; in one case, packing to vessels, one death.

Urologic Department in Gynecologic Clinic.—Among 5,000 patients seen by Halsted and Wilens in a gynecologic clinic during a three year period, 162 were referred for urologic diagnosis or treatment or both, an incidence of 3.25 per cent. The colon bacillus was found in 36.3 per cent of the cases, the staphylococcus in 31.3 per cent and the streptococcus in 16.1 per cent. The authors urge that more attention be paid to the rôle of focal infections as a possible causative factor of infection in these cases.

American Journal of Pathology, Boston

2: 193-273 (May) 1926

*Valvular Diseases of Heart. B. J. Clawson, E. T. Bell and T. B. Hartzell, Minneapolis.—p. 193.
*Specific Lesions of Peripheral Blood Vessels in Rheumatism. W. C. Von Glahn and A. M. Pappenheimer, New York.—p. 235.
*Case of Adiposis Dolorosa: Necropsy. N. C. Foot, R. W. Good and M. C. Mènard, Cincinnati.—p. 251.
*Histopathology of Subcutaneous Lesions in Tularemia in Man. H. H. Permar and G. C. Weil, Pittsburgh.—p. 263.

Valvular Diseases of Heart.—The development of old valvular defects was traced by Clawson, Bell and Hartzell in 280 cases of valvular heart disease, not including those of syphilitic origin. There were eighteen cases each of acute and chronic rheumatic endocarditis; thirteen cases of primary bacterial endocarditis; twenty-seven cases of secondary acute bacterial endocarditis; seventy-four cases of subacute bacterial endocarditis and 130 cases of old valvular defects. Space forbids a more detailed abstract of the pathologic examinations in these cases.

Specific Lesions of Peripheral Blood Vessels in Rheumatism.—In a series of forty-seven consecutive cases of rheumatic cardiac disease examined by Von Glahn and Pappenheimer, specific lesions of the small peripheral arterioles and capillaries, either systemic or pulmonary, have been found in ten. These lesions are characterized by the exudation of fibrin into and about the vessel wall, by a distinctive cellular reaction in the adjacent tissue and by the absence of thrombosis. These acute lesions are followed by organization with or without formation of new collateral channels within the thickened intima and occasionally within the muscular layer.

Pathology of Adiposis Dolorosa.—In the case reported by Foot, Good and Mènard, the pituitary body was apparently at fault, as in most cases that have come to necropsy. The changes in the other endocrine glands seemed to follow as a result of this. There was sclerosis of the thyroid, persistence of thymic tissue which, in a patient of 60, could be explained on a basis of overstimulation by the hypophysis.

Structure of Subcutaneous Lesion in Tularemia.—The histopathology of the subcutaneous lesion in a case of human tularemia is described in detail by Permar and Weil. The lesion presented the microscopic characteristics of a granuloma. The tissue reaction is summarized as follows: (*a*) primary massing of endothelial cells with giant cell formation; (*b*) endothelial hyperplasia with obliteration of capillaries; (*c*) necrosis with polymorphonuclear leukocytic infiltration and liquefaction; (*d*) development of small secondary lesions which pass through the same stages and tend to fuse with the primary one; and (*e*) delayed healing by organization.

Annals of Medical History, New York

8: 95-211 (June) 1926

Life and Time of Adolf Kussmaul. T. H. Bast, Madison, Wis.—p. 95.
Medical Numismatics. F. H. Garrison, Washington, D. C.—p. 128.
Samuel D. Gross. J. H. Gibbon, Philadelphia.—p. 136.
Pioneer Medicine in Western Pennsylvania. I. T. Diller, Pittsburgh.—p. 141.
Old Medical Journals. W. B. Howell, Montreal.—p. 155.
Galen's Discovery and Promulgation of Function of Recurrent Laryngeal Nerve. J. Walsh, Philadelphia.—p. 176.
Fragments of Chinese Medical History. K. K. Chen and A. S. H. Ling, Peking.—p. 185.
China's Contribution to Medicine in Past. W. C. Min, Hangchow, China.—p. 192.

Archives of Otolaryngology, Chicago

3: 481-574 (June) 1926

*Chemotherapy and Serum Therapy of Pneumococcus and Streptococcus Meningitis. I. J. A. Kolmer, Philadelphia.—p. 481.
Some Phases of Streptococcic Infection in Acute Mastoiditis. R. McKinney, Memphis, Tenn.—p. 514.
*Postdiphtheritic Stenosis of Larynx. H. B. Orton, Newark, N. J.—p. 521.
Improved Endoscope for Closing Safety-Pins. A. J. Shekter, Jamaica, N. Y.—p. 534.
Chronic Progressive Deafness Including Otosclerosis and Pathology of Inner Ear. J. K. M. Dickie, Ottawa, Ont.—p. 538.

Treatment of Septic Meningitis.—Kolmer summarizes his experimental work as follows: Polyvalent antistreptococcus serum administered by intramuscular, intravenous, intracisternal and intraventricular injection has failed to influence appreciably the cause and mortality of experimental hemolytic streptococcus meningitis of dogs. Type I antipneumococcus serum administered by intramuscular, intravenous, intracisternal and intraventricular injection has failed to influence appreciably the course and mortality of experimental type I pneumococcus meningitis of dogs. The intravenous, intraventricular and intracisternal injection of antipneumococcus antibody solution has exerted a slight degree of curative activity in the treatment of pneumococcus meningitis. Lavage of one or both of the lateral ventricles to the cisterna magna has proved effective in the treatment of severe experimental streptococcus and pneumococcus meningitis of dogs. This may be combined with the administration of antibody solution by subthecal injection in the treatment of pneumococcus meningitis, or by the injection of gentian violet in the treatment of streptococcus meningitis.

Postdiphtheritic Stenosis of Larynx.—Twenty-five cases of postdiphtheritic stenosis of the larynx are reported by Orton, of which seventeen patients were decannulated and cured. Three are still under treatment. Five patients died from causes not connected with the treatment. Because of the long time necessary for treatment of these patients before they can be decannulized, Orton urges early tracheotomy in diphtheria rather than to await the uncertain procedures of continued intubation. Before any attempt was made to decannulate these patients, infected tonsils were removed.

Archives of Pathology and Laboratory Medicine, Chicago

1: 847-994 (June) 1926

*Bactericidal Action of Pleural Exudates. VII. Streptococcus Infection and Immunity. F. P. Gay and A. R. Clark, New York.—p. 847.
*Histologic Basis for Local Resistance and Immunity to Streptococcus. VIII. F. P. Gay, A. R. Clark and R. W. Linton, New York.—p. 857.
*Histologic Changes Following Administration of Iodine in Exophthalmic Goiter. A. S. Giordano, South Bend, Ind.—p. 881.
*Symmetrical Cortical Necrosis of Kidneys in Pregnancy. W. J. Carson and R. Rockwood, Baltimore.—p. 889.
Mitotic Figures in Malignant Tumors as Affected by Time Before Fixation of Tissues. N. Evans, Loma Linda, Calif.—p. 894.
*Malignant Angiomas: Sarcoma Due to Roentgen Ray. S. F. Livingston and P. Klemperer, New York.—p. 899.
Experimental Focal Embolic Glomerulonephritis in Rabbits. B. J. Clawson, Minneapolis.—p. 911.
New Method of Mounting Fixed Frozen Sections. L. D. Campbell, Loma Linda, Calif.—p. 916.
Experimental Infection-Immunization Against Tuberculosis. E. R. Long, Chicago.—p. 918.

Bactericidal Action of Pleural Exudates.—In this study made by Gay and Clark are described the streptococcidal properties of pleural exudates from rabbits purposely varied to include relatively different proportions of polymorphonuclear cells and mononuclear cells (clasmatocytes). The presence of the mononuclear exudate in the pleural cavity is coincident with protection of the animal. Neither of these exudates is in its entirety bactericidal outside the animal body. The simple transfer of such an exudate to a normal animal also fails to protect the second animal. Experiments in vitro, then, with these exudates, do not explain conditions as they exist in the body. Although whole exudates of both cell types are not destructive to the streptococcus, they do destroy some other organisms. Furthermore, the supernatant fluid of either exudate will destroy the streptococcus. The cells themselves from either exudate may slowly destroy the streptococcus, and an acid extract of either type of cell destroys the streptococcus readily. The streptococcidal property of fractions of exudates is thermostabile, whereas the corresponding property for some other bacteria is thermolabile.

Histologic Basis for Local Resistance and Immunity to Streptococcus.—This paper is supplementary to the preceding one. The authors describe the histologic changes that take place in the pleura of rabbits as the result of the injection of sterile aleuronat of gum arabic broth mixtures. An acute inflammatory pleura is invaded and destroyed by virulent streptococci injected into the pleural cavity, whereas the same organisms disappear rapidly from the pleural cavity of animals with granulating and thickened pleural walls and are found enveloped within clasmatocytes in a relatively undisturbed tissue. Phagocytosis of streptococci in both the exudate and tissues is almost exclusively by mononuclear cells. The pleural wall may be thickened still further by repeating the injection of the nonspecific substances or by injecting living streptococci. The degree of protection would seem roughly commensurate with the depth of granulation tissue that has been produced. The authors are unable to say whether specific immunity is produced by nonspecific and sterile irritating agents possessing some specific factor; in other words, whether all grades of local streptococcus protection are dependent simply on the number of clasmatocytes present. Preliminary experiments show that when one pleural cavity is treated sufficiently, the other cavity, although showing no histologic change in the pleural wall at the time of infection, is nevertheless protected. This protection is accompanied by mobilization of clasmatocytes in the pleural wall in an unusual fashion; there is further indication that the wall of the treated cavity is coincidently stripped of its cells.

Histologic Changes in Thyroid Following Iodine Administration.—Giordano found evidence that in most instances involution changes in the thyroid occur when iodine is administered to patients with exophthalmic goiter, and that, in general, the degree of involution of the thyroid parenchyma closely parallels the clinical course. The changes are similar in character to those described following ligation of the thyroid vessels, but they occur rather uniformly throughout the gland. They have also been observed in patients who came to operation during a period of remission of the clinical symptoms without any therapy other than rest.

Symmetrical Necrosis of Kidneys in Pregnancy.—Typical symmetrical necrosis of the kidneys is apparently invariably associated with pregnancy. Fourteen cases have been recorded. Carson and Rockwood report one case. The necrosis is due to thrombosis of the interlobular arteries, their afferent branches and glomerular capillaries. It is the opinion of Carson and Rockwood that in cases of this type there is an acute glomerular nephritis with an injury to the vascular endothelium from a toxin circulating in the blood stream, followed by the formation of thrombi composed of blood platelets and fibrin.

Recurrent Naevi Vasculosi.—A case of recurrent naevi vasculosi is reported by Livingston and Klemperer. The histologic examination revealed features highly suggestive of an angioblastic sarcoma. The microscopic picture revealed definite evidence of a pathogenetic relationship between the atypical vascular proliferation and the previous roentgen-ray treatment. A case of a malignant angioma with apparently benign histologic features is also reported. The histologic examination revealed unripe mesenchymal tissue as a constituent of the tumor, which explains the malignant nature of this type of neoplasm.

Arkansas Medical Society Journal, Little Rock

22: 255-265 (May) 1926

Arkansas Tuberculosis Association. E. Chambers, Little Rock.—p. 255.

Atlantic Medical Journal, Harrisburg, Pa.

29: 587-670 (June) 1926

Hematuria. H. H. Young, Baltimore.—p. 587.
*Psychic, Nervous and Mechanical Factors in Digestive Disorders of Childhood. J. P. Scott, Philadelphia.—p. 590.
Pyloric Stenosis in Infants. H. P. Brown, Jr., Philadelphia.—p. 596.
Acute Intussusception in Infants. R. M. Entwisle, Pittsburgh.—p. 599.
*Empyema in Children. E. G. Alexander and R. L. Sherk, Philadelphia.—p. 602.
Etiology and Pathology of Aural Disease. F. J. Bishop, Scranton, Pa.—p. 607.
Symptomatology in Diseases. E. A. Curtin, Scranton, Pa.—p. 608.
Treatment of Aural Diseases. E. U. Buckman, Wilkes-Barre, Pa.—p. 611.
Increasing Importance of Chemistry in Internal Medicine. J. H. Austin, Philadelphia.—p. 612.
Relation of Chlorides of Body to Disease of Gastro-Intestinal Tract. E. Rose, Philadelphia.—p. 613.
Elimination of Carbon Monoxide from Blood. W. C. Stadie, Philadelphia.—p. 616.
Infant Feeding. J. H. McKee, Philadelphia.—p. 618.
Midwife Work in Pennsylvania. M. R. Noble, Harrisburg.—p. 625.
Bronchial Asthma and Hay-Fever. R. A. Kern, Philadelphia.—p. 628.

Digestive Disorders of Children.—In the correction of disorders of digestion in the child, Scott says close attention must be paid to details of management and environment. Explicitness of instruction and careful questioning of the parent will often bring success in difficult cases. Particular stress must be laid on the development of good habits and the breaking of harmful ones in their incipiency. Mental, calm and domestic happiness often restore normal function.

Empyema in Children.—Of 256 cases of empyema analyzed by Alexander and Sherk, 31.8 per cent occurred in children under 12 years of age. The mortality was 17 per cent. As a complication of the communicable diseases, empyema was observed only seven times in 12,290 cases. It occurs most frequently in scarlet fever cases. However, when present, its mortality rate is high (50 per cent).

Florida Medical Association Journal, Jacksonville

12: 285-313 (May) 1926

Proceedings of Florida Medical Association, 1926.—p. 288.

Journal of Infectious Diseases, Chicago

38: 469-552 (June) 1926

*Mercurochrome as Biliary Antiseptic. IX. Experimental Typhoid-Paratyphoid Carriers. K. F. Meyer, H. Sommer and B. Eddie, San Francisco.—p. 469.
*Chronic Periapical Dental Infection. R. L. Haden, Kansas City, Mo.—p. 486.
*Mucous Membrane Immunity to Pneumococci in Rabbits. M. L. Cooper, Cincinnati.—p. 491.
Anthrax Immunity. II. Immunization of Sheep by Means of Anthrax Bacilli Attenuated with Sodium Chloride. S. J. Schilling, Fayetteville, Ark.—p. 499.
Cellobiose Fermentation by Coli-Aerogenes Group. S. A. Koser, Urbana, Ill.—p. 506.
Increasing Virulence of Clostridium Chauvoei by Ferric Salts. J. P. Scott, Manhattan, Kan.—p. 511.
*Incidence of Pneumococcus Types in Pneumonias of Children. R. E. Westlund, Chicago.—p. 514.
*Removal of Acidfastness from Tubercle Bacilli by Oleic Acid or Olive Oil. F. A. McJunkin, St. Louis.—p. 520.
*Tuberculous Infection in Guinea-Pigs Treated with Tubercle Bacilli Made Nonacidfast by Incubation with Olive Oil. F. A. McJunkin, St. Louis.—p. 524.
*Skin Reaction in Poliomyelitis. E. C. Rosenow, Rochester, Minn.—p. 529.
*Poliomyelitis Precipitin Reaction. E. C. Rosenow, Rochester, Minn.—p. 532.
*Tularemia in Wild Rats. L. V. Dieter and B. Rhodes, Los Angeles.—p. 541.

Failure of Mercurochrome as Biliary Antiseptic.—The experimental evidence adduced by Meyer, Sommer and Eddie is summarized as follows: Mercurochrome-220 soluble, intravenously injected, is excreted in the hepatic bile of rabbits in concentrations which may destroy 10,000,000 typhoid bacilli in from six to twenty-four hours. However, it has been impossible to cure experimentally produced gallbladder carriers by giving mercurochrome intravenously or by mouth. The colorimetric methods used in the estimation of mercurochrome and the influence of proteins on the germicidal properties of the compound are discussed.

Bacteria of Periapical Tooth Infections.—The results of periapical cultures from 1,500 incisor, cuspid and bicuspid teeth are reported by Haden. Four and eight-tenths per cent of the vital group, 62.8 per cent of the pulpless teeth with positive roentgenograms and 46.2 per cent of the pulpless teeth with negative roentgenograms showed ten or more colonies per tube. The nonhemolytic streptococcus was by far the most commonly found organism. Hemolytic streptococci occurred only rarely. The most common types of streptococci as determined by carbohydrate fermentation are *S. fecalis, S. mitis* and *S. salivarius.*

Mucous Membrane Immunity to Pneumococci.—Evidence is advanced by Cooper showing that it is comparatively easy to stimulate the production of generalized immunity to the pneumococcus, type 1, in the rabbit by introducing a killed pneumococcus vaccine immediately beneath the mucosa of the cheek. A surprisingly small amount of vaccine is necessary for immunization, 1 minim on each of ten successive days being sufficient. At the present time, this immunity has persisted for four months. All attempts to immunize subcutaneously and intradermally by injecting 1 minim on ten successive days, by instillation of 1 minim into the eye, or by swabbing the nose and mouth have failed to result in any protective immunity.

Pneumococcus Types in Pneumonia in Children.—In a series of sixty-nine cases of lobar pneumonia and thirty-four cases of bronchopneumonia occurring in children between the ages of 3 weeks and 11 years, pneumococci were obtained by Westlund by nasopharyngeal swabbing in 60.8 per cent of the cases of lobar pneumonia and in 52.6 per cent of the cases of bronchopneumonia. The relative incidence of pneumococcus types in these two groups of cases was much the same, group 4 predominating, type 2 coming next in frequency, type 1 third, and type 3 being least frequent. The fixed types of pneumococcus are less frequent in the pneumonias of children than in those of adults. The association of group 4 with representatives of one or another of the fixed types was demonstrated in several instances. In a group of thirteen cases of nonpneumonic respiratory disease in children, pneumococci were present in 92 per cent. No examples of types 1 and 3 were encountered, type 2 and group 4 forming one third and two thirds, respectively, of the isolated pneumococci. In forty-eight nonrespiratory diseases in children, pneumococci were found in 58 per cent. Type 1 was not represented in this group; type 2 formed 14.2 per cent, type 3, 3.6 per cent, and group 4, 82.1 per cent. The occurrence of type 2 pneumococci in the throats of these children in the hospital wards may have been due to contact.

Removal of Acidfastness from Tubercle Bacilli.—McJunkin asserts that cultures of tubercle bacilli dehydrated with acetone or alcohol lose their acidfastness on incubation with oleic acid. Cultures dehydrated with acetone lose acidfastness on incubation with olive oil, but those dehydrated with alcohol do not. The loss of acidfastness is incomplete in either case with less than 1 per cent of the bacilli retaining their property of staining red by the Ziehl-Neelson method. The new bacilli that remain acidfast are thought to be dead at the time of incubation.

Infection of Guinea-Pigs with Nonacidfast Tubercle Bacilli.—The results obtained by treating guinea-pigs with nonacidfast cultures of tubercle bacilli before and after inoculating them with living tubercle bacilli are reported by McJunkin. Tuberculous infection of guinea-pigs produced by inoculation with virulent tubercle bacilli (Saranac Laboratory H 60) is not influenced by injections of saline suspensions of cultures of the same strain of bacilli made nonacidfast by dehydration and incubation with olive oil. The results are the same whether the injection of nonacidfast suspensions precedes or follows the inoculation. Mixtures of nonacidfast tubercle bacilli of a lesser virulence (Saranac Laboratory H 37) and the olive oil in which they were incubated were injected into several series of guinea-pigs before inoculation with living cultures of the same strain of organism. The animals treated with the oil-bacillus suspensions became tuberculous on incubation, and there was no material difference in the progress of the infection in the treated guinea-pigs and untreated ones of the same age and weight.

Skin Reaction in Poliomyelitis.—Rosenow has found that freshly isolated strains of the pleomorphic streptococcus, which produced flaccid paralysis in rabbits, when grown from eighteen to twenty-four hours in pancreatic digest heart muscle broth to which one part in ten of ascites fluid was added, and the culture killed with phenol, 0.5 per cent, or tricresol, 0.3 per cent, yield a useful toxic antigen. One tenth cc. of a 1:100 dilution of this killed culture in sodium chloride solution, injected intradermally, results in no reaction or only slight redness in persons who have recovered from poliomyelitis, but redness is often marked if persons have not had poliomyelitis. The maximal reaction develops in from eighteen to twenty-four hours, after which it gradually subsides. Slight induration and redness limited to the area injected may last for several days. Absence of redness at the point of injection of the test substance at the end of eighteen to twenty-four hours is considered negative. The control injection consists of a dilution of 1:100 of the corresponding uninoculated broth.

Poliomyelitis Precipitin Reaction.—The results of the precipitin reaction with immune horse serums and extracts of nasopharyngeal swabbings in community and institutional outbreaks of poliomyelitis, Rosenow says, proved positive in nearly all frank and abortive cases at the time of the attack, in a high percentage of normal contacts and in persons not exposed to the disease at the time when cases occurred. It proved negative in nearly all of the cases in from two to three weeks after the acute attack had subsided and in normal persons soon after the epidemic had disappeared. In one epidemic, the incidence of positive reactions generally was found low shortly before the occurrence of the first case, high during the period of the epidemic and again low after the epidemic had subsided. The increase in positive reactions as cases of poliomyelitis developed and the decrease as poliomyelitis disappeared occurred rapidly and seemingly independently of exposure to the disease, in isolated households in the country as well as in the urban populations. Persons who were negative to the precipitin reaction on entrance into the epidemic zone soon became positive and

reactions resembling abortive attacks of poliomyelitis were common in children. The number of positive reactions in persons who came to the Mayo Clinic from widely separated communities was relatively high during the latter part of August when poliomyelitis was generally prevalent and much lower during the latter part of October after poliomyelitis had largely disappeared. After the epidemic in Rochester had subsided and the precipitin reaction in the population had become largely negative, cases occurred south of Rochester where the number of a positive precipitin reaction was high. In certain instances, poliomyelitis occurred without exposure within from five to twelve days after the presence of the streptococcus was demonstrated in the throat. Repeated swabbings showed that the carrier state lasts usually from one to three weeks in normal persons. Immunity to poliomyelitis and the occurrence of the organism in the throat did not run parallel. The positive reactions during epidemics in adults, who are relatively immune, and in children, who are relatively susceptible, were found nearly equally high, and persons who had had poliomyelitis became carriers of the streptococcus during epidemics quite like persons who had not had the disease.

Tularemia in Wild Rats.—The existence of latent *B. tularense* infections in wild rats has been established by Dieter and Rhodes by inoculation experiments, by cultures on egg yolk medium and by agglutination tests. The lesions in the naturally infected rats are not characteristic, and the nature of the infection can only be established by inoculations of guinea-pigs.

Missouri State Medical Association Journal, St. Louis

23: 121-164 (April) 1926

Fraudulent Medical Diplomas. F. C. Waite, Cleveland.—p. 121.
Pyloric Stenosis in Infancy: Three Cases. C. A. W. Zimmermann, Cape Girardeau.—p. 131.
*Abscess of Pancreas. A. S. Welch, Kansas City.—p. 135.
*Primary Carcinoma of Liver. E. Schlisler and J. C. Morfit, St. Louis. —p. 137.
*Alleged Symptomatic Cure of Pernicious Anemia. M. Pitzman, St. Louis.—p. 138.
*Common Warts of Mouth. W. D. Davis, St. Louis.—p. 144.

Abscess of Pancreas.—Welch says that abscess of the pancreas should be considered in the differential diagnosis of upper abdominal lesions. The condition is operable and can be cured. The diagnosis of solitary pancreatic abscess is based on the signs and symptoms of suppuration, and on signs and symptoms localized to the pancreas. The chills, sweats, hectic fever and leukocytosis are characteristic of suppuration. That the pancreas is the seat of the lesion is indicated by midepigastric tenderness to deep pressure and an enlarging tumor mass between the stomach and transverse colon. Occasionally, abscess in the tail of the pancreas may be confused with left perinephritic abscess.

Primary Carcinoma of Liver.—The tentative diagnosis in the case reported by Schlisler and Morfit was hyperstatic pneumonia (postinfluenzal), myocarditis with valvular disease, hypertrophied prostate, arteriosclerosis, pleurisy, liver hypertrophy and gallbladder disease. At the necropsy a primary adenocarcinoma of the liver was found with no metastases elsewhere.

Hydrochloric Acid Treatment of Pernicious Anemia.—The hydrochloric acid treatment of pernicious anemia is discussed further by Pitzman, and thirteen cases are reviewed. The maximum amount of dilute hydrochloric acid taken after meals without discomfort at a single dose in half a glass of water was 30 drops, the minimum, 15 drops, but these doses could be repeated at half hour intervals for from three to five doses after each meal without any complaint, depending on the size and character of the meal. This relatively intensive acid treatment immediately improved the digestion of all nonmoribund patients in this series, and progressively improved the blood picture and all other minor signs and symptoms. Both clinical and postmortem evidence is presented to sustain the author's a priori conception that arsenicals are not only not necessary in pernicious anemia but also, as used in practice, actually injure the patient's prospects. A modified acid treatment is suggested in certain gastro-intestinal disturbances and in typical pseudopernicious anemia cases.

Warts of Tongue.—Of the two cases presented by Davis, one was a single verruca of the tongue; the other patient had an enormous number of verrucae in the mouth.

Oklahoma State Medical Association Journal, Muskogee

19: 112-139 (May) 1926

Laryngotracheobronchial Endoscopy. A. L. Guthrie, Oklahoma City. —p. 112.
Ectopic Pregnancy: Eighteen Cases. S. F. Wildman, El Reno.—p. 117.
Thyroidectomy. A. L. Blesh, Oklahoma City.—p. 119.
Injuries of Spine. S. R. Cunningham, Oklahoma City.—p. 124.
Abdominal Hemorrhage: Laparotomy; Recovery. A. G. Cowles, Ardmore.—p. 127.

Philippine Journal of Science, Manila

30: 1-152 (May) 1926

Serologic Grouping of B. Dysenteriae Based on Quality of Antigen and Normal Agglutinins. O. Schöbl and R. Villaamil, Manila.—p. 1.
*Serology of Leprosy. I. Wassermann Reaction. E. V. Pineda and E. Roxas-Pineda, Culion, P. I.—p. 39.
*Id. II. Nitric Acid Precipitation (Bruck, Modified). H. W. Wade, Culion, P. I.—p. 59.
Nature and Availability of Plant-Food Constituents of Philippine Guano. M. Tirona, Manila.—p. 69.
Additions to Our Knowledge of Bornean Flora. II. E. D. Merrill, Berkeley, Calif.—p. 79.
Revision of Philippine Species of Gleneini (Coleoptera, Longicornia). C. Aurivillius, Stockholm.—p. 89.
Philippine and Malayan Ploiariinae (Hemiptera, Reduviidae). W. L. McAtee and J. R. Malloch, Washington, D. C.—p. 117.

Wassermann Test in Leprosy.—Six hundred and fifty lepers were tested by Pineda and Roxas-Pineda by means of the Wassermann test. The reaction was negative in uncomplicated cases of leprosy in its ordinary phase. They assert that when the Wassermann reaction is clearly positive in cases of ordinary leprosy it has the same significance as in nonlepers. In a certain proportion of cases of lepra reaction without evidence or presumption of treponematous complication, weakly positive reactions are obtained. That such reactions are due to the same substance that is demonstrated in syphilis and yaws is believed highly improbable.

Nitric Acid Reaction in Leprosy.—Results with the nitric acid reaction of Bruck in leprosy are reported by Wade. Of one hundred leper serums tested none was negative. Antileprosy treatment apparently reduces the degree of reaction, it being very strong in a much smaller proportion (7 per cent) of the patients who have been under treatment than in those with new untreated cases (44 per cent). Of a group of sixteen nonlepers, only three gave negative reactions, these among the professional staff, while two (laborers) were strongly positive. This reaction is said to be of no value in the diagnosis of a particular disease; it does not depend on the presence of syphilis (or yaws) alone, and does not have the significance of the Wassermann reaction.

Public Health Journal, Toronto

17: 271-320 (June) 1926

Canadian Public Health Association. G. D. Porter, Toronto.—p. 271.
Canadian Social Hygiene Council. J. Riddell.—p. 277.
Accident Prevention. R. B. Morley.—p. 285.
Infections of Pharynx. E. Boyd, Toronto.—p. 290.
Milk Problems in Canada. M. M. Seymour, Regina, Sask.—p. 295.

Rhode Island Medical Journal, Providence

9: 83-100 (June) 1926

Treatment of Certain Suppurative Conditions of Lung. W. Whittemore, Boston.—p. 83.
Care of Diabetics at Rhode Island Hospital Since 1910. A. M. Burgess, L. I. Kramer, M. J. Carpenter and H. S. Munro, Providence.—p. 90.

Surgery, Gynecology and Obstetrics, Chicago

42: 729-860 (June) 1926

Sympathectomy in Raynaud's Disease, Erythromelalgia and Other Vascular Diseases of Extremities. L. Davis and A. B. Kanavel, Chicago. —p. 729.
Peroral Endoscopy, Esophagoscopy and Bronchoscopy. G. Tucker, Philadelphia.—p. 743.
*Diabetic and Arteriosclerotic Gangrene of Lower Extremities. E. L. Eliason and V. W. M. Wright, Philadelphia.—p. 753.
*Subacute Ileocolic Intussusception Secondary to Carcinoma of Ileum. J. G. Probstein and M. G. Seelig, St. Louis.—p. 769.

*Branchial Fistula—Relation to Irritation of Vagus. L. Carp, New York.—p. 772.
Effect of Variation of Hydrogen-Ion Concentration on Motility of Human Spermatozoa. M. Muschat, Philadelphia.—p. 778.
*Cholecystitis and Cholelithiasis. S. H. Mentzer, Rochester, Minn.—p. 782.
*Proliferative Gingivitis of Pregnancy. S. Monash, New York.—p. 794.
*Torula Infection in Man: Case. J. L. McGehee and I. D. Michelson, Memphis, Tenn.—p. 803.
*Surgery on Tuberculous Patient. F. W. Griffith, Asheville, N. C.—p. 809.
Rat Bite Fever: Case. W. E. Hennerich, St. Louis.—p. 813.
Cesarean Section: Analysis of One Hundred and Seventy Cases. H. F. Lewis, Chicago.—p. 815.
Surgical Treatment of Abscess of Liver. U. Valdes, Mexico City.—p. 822.
Cholecystogastrostomy. W. Walters, Rochester, Minn.—p. 825.
Technic of Suspension of Uterus. I. Abell, Louisville, Ky.—p. 828.
*Technic of Hysterectomy. F. G. DuBose, Selma, Ala.—p. 832.
Improved Operation for Congenital Deep Culdesac. L. Glassman, Chicago.—p. 837.
*Bloodless Operation for Anorectal Prolapse in Children. C. L. Heald, Cedar Rapids, Iowa.—p. 840.
Skeletal Traction Clamp Permitting Full Extension of Extremity. J. A. Key, St. Louis.—p. 842.
Plastic Operation for Reduction of Old Transverse Fractures of Distal End of Radius, Healed with Displacement and Deformity. L. Thornton, Atlanta, Ga.—p. 844.
Massive Squamous Cell Epithelioma Associated with Angioma of Scalp. D. S. Pulford and A. W. Adson, Rochester, Minn.—p. 846.

Diabetic and Arteriosclerotic Gangrene of Lower Extremities.—The series of cases analyzed by Eliason and Wright comprise forty-five cases of arteriosclerotic and fifty-five cases of diabetic gangrene of the lower extremities which have been amputated. The two types are presented together to show their common and dissimilar points and that both are similar regarding circulatory unbalance, with an added local and general faulty metabolism in the diabetic cases. No importance is attached by the authors to the location of the origin of gangrene (i. e., right or left, first or second toes, etc.) as it is a question of arteriosclerosis higher up. The choice of anesthetics appears to be gas-oxygen, short ether, and spinal. The authors advise to operate early and high, with less thought of the stump and artificial limb than of reamputation and its high mortality. Early and nontemporizing operations should be the rule and not the exception. The operative mortality in senile cases, was nil, in diabetic cases 3.6 per cent.

Ileocolic Intussusception Secondary to Carcinoma of Ileum.—The case reported by Probstein and Seelig is unusual because it deals with carcinoma of the small bowel in a young person, aged 35, and because the intussusception that resulted ran a course strikingly like acute appendicitis, without any clinical signs of intestinal obstruction, despite the fact that at operation it was clearly demonstrated that the ascending colon was completely blocked.

Branchial Fistula Causes Cough.—The case reported by Carp occurred in a boy, aged 5 years, who gave a history of an unproductive cough for two years, unsuccessfully treated by a tonsillectomy and medical measures. At operation the inflammatory, incomplete, external fistulous tract was found adherent to the vagus nerve, and after its excision the cough stopped promptly and did not return in a two and a half year follow-up.

Cholecystitis and Cholelithiasis.—Sixty-six per cent of 612 consecutive necropsies at the Mayo Clinic showed grossly visible pathologic changes in the gallbladder; 75 per cent showed microscopic pathologic changes; 77 per cent of the deaths were due to disease of the gallbladder, per se. Eight per cent of the diseased gallbladders showed only minor inflammatory changes. "Cholesterosis" of the gallbladder is essentially a noninflammatory disease. It was present in 38 per cent of the total series. Eighty-two per cent of women who had been pregnant had some grossly visible gallbladder disease. Sixty-four per cent of them showed "cholesterosis" only. In 70 per cent of the patients weighing more than 210 pounds (95.2 Kg.), this lipoid disturbance was grossly visible in the gallbladder wall. Gallstones were found in 22 per cent of the adults; 17 per cent of the men had stones, whereas 28 per cent of the women had them. The youngest patient was a woman, aged 23. Hydrops of the gallbladder was found in 7 per cent of the series. The inflammatory changes in the gallbladder wall and in neighboring organs were less in the cases of stones rich in cholesterin than in the pigmented stones (common stones). Primary carcinoma of the gallbladder was found in 1.63 per cent of the total series. There was one case of primary sarcoma of the gallbladder. Gallstones were found in all the cases of malignant disease involving the gallbladder. Sixty-eight per cent of the diseased gallbladders were accompanied by disease in the appendix. Gastric or duodenal ulcers were found in 29 per cent of the cases of diseased gallbladder. In 80 per cent of the cases of diseased gallbladder there was associated disease in the appendix, stomach or duodenum. Inflammatory changes in the liver are more frequent in cases of inflammatory disease in the gallbladder (stones) than in cases of noninflammatory disease ("cholesterosis"). Inflammatory changes in the pancreas are relatively infrequent in gallbladder disease.

Proliferative Gingivitis of Pregnancy.—Six cases are reported by Monash in which tumor-like masses were observed forming on the gums of pregnant women. They began to form at a variable time during pregnancy, increased in size unless treated, and spontaneously diminished in size or disappeared completely after delivery. The growth is usually accompanied by a generalized gingivitis and represents simply an exaggerated degree of this condition. The name proliferative gingivitis of pregnancy is proposed for all phases of the condition. This type of growth is inflammatory and should not be classed as a tumor. Elimination of all irritating factors and, if necessary, excision of the growth about a month or two after delivery, should constitute the treatment.

Torula Infection in Man.—McGehee and Michelson assert that theirs is the first reported instance in which a torula has been isolated from a negro. The disease was local in type, involving the groin, and was attended with fever and leukocytosis. Recovery followed removal of the diseased glands.

Surgery on Tuberculous Patient.—Griffith advises that local anesthesia be used for operations on the tuberculous whenever possible. Ether does practically no more harm to the tuberculous than to the nontuberculous lung, and a general anesthesia with ether should be employed whenever the necessity arises. Ethylene bids fair to replace ether in these cases. Pulmonary tuberculosis is not a strong contraindication to surgery. On the contrary, many patients are greatly benefited by the surgical removal of conditions that are indirectly retarding their recovery. Whenever a tuberculous patient becomes pregnant, intervention should be considered. If it is deemed wise to allow the pregnancy to go to full term, this should be done; if, however, it is reasonably certain that intervention will have to be done, it should occur early before the lungs have been irreparably injured.

Technic of Hysterectomy.—The structure, to which attention is called by DuBose, in the female is the prototype of the levator prostate in the male. This muscle arises from the os pubis, with the puborectalis, and follows its course backward and internally to it along the sides of the vagina, converging over the anterior vaginal fornix and anterior surface of the cervix; it is inserted into the anterior surface of the cervix at the isthmus, and fuses into the median aponeurotic raphé with the fibers of the same muscle of the opposite side. This median raphé is a strong fibrous or aponeurotic band, extending throughout the midline portion of the uterovesical attachment. On either side the connection between the uterus and the bladder is of loose areolar tissue, and is easily separated by blunt dissection in the lines of cleavage. The median attachment is dense and firmly adherent, holding the base of the bladder in a longitudinal line firmly attached to the cervix uteri, which portion is separated with difficulty by blunt dissection. In a hysterectomy it is usually cut with scissors. This fibrous band of attachment between the bladder and the uterus begins approximately 1 cm. below the isthmus, portio supravaginalis, and extends downward and below on the vagina at its reflection on the cervix and between the vaginovesical attachment. DuBose utilizes this muscle in performing a hysterectomy and claims many advantages for his procedure.

Operation for Anorectal Prolapse in Children.—Heald anchors the replaced rectum externally by means of two silkworm-gut sutures—one passing out through the notch at the sacrococcygeal angle and the other at about the middle of the coccyx. The sutures are removed at the end of two weeks. The efficacy of this method lies in the well known tendency of silkworm-gut to cut its way through the tissues, when under tension. As the suture slowly cuts through the rectal wall and perirectal tissues, healing by granulation follows in its track with the formation of firm connective tissue adhesions.

Tennessee State Medical Association Journal, Nashville

18: 349-380 (April) 1926

Plea for Progress. W. C. Dixon, Nashville.—p. 349.
Proceedings of Tennessee State Medical Association, Memphis, 1926.—p. 354.

Texas State Journal of Medicine, Fort Worth

22: 1-58 (May) 1926

Differential Diagnosis in Chronic Purulent Otitis Media. T. J. Walthall, San Antonio.—p. 13.
Cholecystectomy: End-Results of One Hundred Cases. L. W. Pollok, Temple.—p. 16.
Significance of Abdominal Pain. J. S. Hixson, San Angelo.—p. 19.
Value of Sodium Chloride and Enterostomy in Treatment of Acute Intestinal Obstruction. P. Riddle, Dallas.—p. 22.
Congenital Infantile Hypertrophic Stenosis of Pylorus. J. C. A. Guest, E. Jones and Q. B. Lee, Wichita Falls.—p. 25.
Functions of Spleen. C. A. R. Campbell, San Antonio.—p. 28.
Medical Management of Hyperthyroidism. D. W. Carter, Jr., Dallas.—p. 34.
Primary Handling and Free Drainage of Extensive Trauma. M. W. Sherwood, Temple.—p. 36.
Relationship Between Claim Department and Railway Surgeon. W. L. Alexander, Dallas.—p. 39.
Superstitions and Medicine. H. L. Wilder, Clarendon.—p. 43.

United States Veterans' Bureau Medical Bulletin, Washington, D. C.

2: 551-650 (June) 1926

Care of Tuberculous Patient After Rest Period. W. L. Dunn, Asheville, N. C.—p. 551.
*Routine Stool Examinations for Protozoa. T. Wight, Palo Alto, Calif.—p. 557.
Plea for Better Histories and More Frequent Stool Examinations. F. M. Seibert, St. Paul.—p. 564.
Psychiatrist and His Patients. F. R. Sims, Augusta, Ga.—p. 568.
*Pulmonary Tuberculosis Among Deteriorated Psychotics. B. Trippeer, Camp Custer, Mich.—p. 572.
Treatment of Tuberculous Exservice Man in Relation to Disciplinary Regulations. W. A. Colton, Castle Point, N. Y.—p. 576.
Type of Tuberculous Patients Entering Veterans' Bureau Hospitals Today. C. L. Moore, Legion, Texas.—p. 579.
Problems Confronting Those Engaged in Treating Pulmonary Tuberculosis in Veterans' Bureau Hospitals. G. P. Asper, Rutland Heights, Mass.—p. 582.
Measuring Relief Load of Regional Office. E. R. Bush, Cincinnati.—p. 587.
Agriculture as Occupational Therapy in Neuropsychiatric Hospitals. H. J. Kefauver, Washington, D. C.—p. 592.
Vincent's Stomatitis. H. G. Fain, Oteen, N. C.—p. 601.
Congenital Total Hemihypertrophy: Two Cases. F. L. Long, Los Angeles.—p. 606.
Perthes' Disease. E. Goldfain, Oklahoma City.—p. 610.
Occult Duodenal Ulcer. G. R. Gates, Bronx, N. Y.—p. 614.
Statistical Studies on Malignant Neoplastic Diseases in United States Veterans' Bureau. P. B. Matz, Washington, D. C.—p. 617.

Routine Stool Examinations for Protozoa.—At the U. S. Veterans' Hospital no. 24, routine stool examinations for protozoa were made on 1,341 newly admitted patients in one year. In all, 3,193 examinations were made. One hundred and fifty-one patients gave a history of dysentery. Cysts or free forms of *Endameba histolytica* were found in thirty-one. These organisms, or their cysts, were found in sixty-one other patients, who gave no history of dysentery. Wight feels that more thorough examination would probably reveal that at least 14 per cent are infected. Evidence is fairly strong that carriers of *E. histolytica* may be successfully treated with bismuth, emetine, and iodide alone, if given in sufficient quantity and for a sufficient length of time. Severe dysentery of several years' duration has been apparently cured by this means, one course of treatment sufficing, there being no return of the organisms in 100 subsequent examinations. Since he is capable of distributing the cysts of *E. histolytica* to others, the healthy carrier is more dangerous to the community than the patient with active dysentery, in whom cystic forms are largely or altogether absent, and should receive treatment whenever possible. The carrier of *E. histolytica* should not be permitted to handle food to be served to others.

Pulmonary Tuberculosis and Mental Disease.—Trippeer asserts that pulmonary tuberculosis is the most frequent and most important complication arising during the course of chronic mental diseases and is responsible for the death of approximately 30 per cent of these unfortunate individuals. The diagnosis of pulmonary tuberculosis among the non-cooperative insane offers many difficulties, and all standard methods of arriving at a diagnosis among the sane lose much of their value when practiced among the insane, and many of these methods are practically worthless because of the lack of cooperation on the part of the patient.

Wisconsin Medical Journal, Milwaukee

25: 273-322 (June) 1926

*Operations as Adjuncts in Treatment of Pulmonary Tuberculosis: Induced Diaphragmatic Palsy. J. L. Yates, Milwaukee.—p. 273.
*Evaluation of Surgical Treatment in Pulmonary Tuberculosis. K. E. Kassowitz, Wauwatosa.—p. 279.
*Technical Aspects of Producing Diaphragmatic Palsy. J. M. Cairns, Wauwatosa.—p. 282.
Painful Feet in Children: Prevention and Treatment. C. C. Schneider, Milwaukee.—p. 284.
Comparison of Malarial and Tryparsamide Therapy in Paresis. H. H. Reese, Madison.—p. 289.
Scarlet Fever. W. D. Stovall, Madison.—p. 293.
Hemoptysis in Cardiac Affections. O. R. McMurry, Madison.—p. 297.
Three Cases of Aortic Aneurysm. E. E. McKinley, Madison.—p. 299.
Perforation of Gallbladder Twice in Same Patient with Complete Recovery. D. Fisher and E. H. Mensing, Milwaukee.—p. 302.
Repair of Bone Fracture. F. D. Geist, Madison.—p. 303.

Induced Diaphragmatic Palsy in Treatment of Pulmonary Tuberculosis.—Yates asserts that induced diaphragmatic palsy, used in conjunction with other procedures in the treatment of pulmonary tuberculosis, is safe and is followed by such improvement in general and local conditions as to warrant serious consideration.

Id.—Evidence obtained by Kassowitz from observations on eighty-one patients for sixteen months after operation shows that palsy of the diaphragm can be induced with minimal danger and that it is harmless to all and helpful to many patients. Combined with other measures, it has helped to arrest the disease and to expedite recoveries; it has eliminated the need for more radical operations in some patients and has reduced the severity of such procedures as were unavoidable. Paralysis of the diaphragm is an effective adjunct in treatment of pulmonary tuberculosis, because it acts in accordance with natural responses, increases the amount of blood delivered to the lung and minimizes cardiac labor.

Id.—Three types of operation for producing diaphragmatic palsy are discussed by Cairns: phrenemphraxis for temporary nerve block; exeresis and phrenicotomy for permanent paralysis. The immediate effects of these procedures have been noted in eighty-one patients. A paradox, the raising of the paralyzed side produced by increased intra-abdominal pressure occasioned during inspiratory contraction of the sound side of the diaphragm, occurred in twenty-one, elevation and immobility in forty-nine and elevation and restricted mobility in eleven. In the last, the less favorable results were noted before it was learned how to locate and identify accessory branches. Phrenemphraxis attained by crushing has been performed sixty-one times; by transverse division of nerve fibrils within the sheath, twice; exeresis, sixteen times, and partial exeresis with phrenicotomy, twice. The object of treatment is to minimize psychic distress as well as physical disability and not to develop more impressive statistics. The most convincing evidence of the help secured is presented by patients who improve after the nerve is blocked, hold their improvement until the diaphragm becomes active again, and then, as they begin to get worse, request another operation, even suggesting the advisability of a permanent block. Benefits have been notable in the majority of patients.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

1: 123-181 (June) 1926

*Sclerema Neonatorum: Chemistry of Subcutaneous Tissues. II. G. A. Harrison.—p. 123.
*Nephritis in Childhood. N. B. Capon.—p. 141.
Case of Hypertelorism. W. B. Drummond.—p. 166.
*Case of Hypertelorism Without Mental Defect. F. M. B. Allen.—p. 171.
*Chronic Ulcerative Colitis in Children. G. Bourne.—p. 175.

Subcutaneous Tissue in Sclerema Neonatorum.—Five cases of sclerema neonatorum (adiposum) are reported by Harrison, with postmortem and histologic examinations in four. The fifth patient recovered. In two cases there were cysts in the subcutaneous fat. Histologically, in the four cases, the subcutaneous fat showed evidence of chronic inflammation and repair, with giant cell formation. In each case there were abundant anisotropic crystals in the fat and lying free. The roentgen ray revealed opaque deposits. The chemistry of the subcutaneous fat has been studied in four cases—extensively in two. The melting point was raised slightly, and there was an increase in the total cholesterol, but the iodine and saponification values were similar to control cases of corresponding ages. The view that sclerema is a primary inflammation of the subcutaneous tissues of unknown cause is upheld.

Nephritis in Childhood.—A clinical and pathologic classification for the inflammatory kidney diseases of childhood is suggested by Capon. It is essentially a reversion to the older scheme but provides a place for the true nephroses. Renal efficiency tests, while commended on general principles as the rational procedure in investigation of disease, have not, in Capon's experience, furnished any diagnostic information of importance. They are sometimes of help in determining the degree of the lesion and whether it is advancing or retrogressing. They are of most value in prognosis and in directing diet and treatment. The tests must be repeated and taken into consideration along with clinical and other laboratory examinations. It is stated definitely that continued nitrogen retention is of importance and denotes serious injury and that a persistently low phenolsulphonphthalein excretion is also serious. Kidney decapsulation is held worthy of further trial. It is probable that results would be better if the operation were carried out sooner.

Hereditary Factor in Hypertelorism.—Support to Greig's theory of an hereditary want of balance in development is given in the case cited by Allen. In both parents the eyes were rather widely separated. In the father there was some flattening of the nose in addition.

Ulcerative Colitis in Child.—Bourne reports a case of ulcerative colitis in a girl, aged 7, and analyzes ten other proved cases found in the literature.

British Medical Journal, London

1: 1073-1108 (June 26) 1926

Lethargic Encephalitis in England. A. S. MacNalty.—p. 1073.
*Absorption of Mercurials from Ointments Applied to Skin. R. B. Wild and I. Roberts.—p. 1076.
*Treatment of Postencephalitic Parkinsonism by Nicotine. H. Moll.—p. 1079.
*Explanation of Two Forms of Bilirubin Demonstrated by Van Den Bergh Reaction. G. A. Collinson and F. S. Fowweather.—p. 1081.
Double Vagina and Single Uterus. R. C. Bartlett.—p. 1083.
Tuberculin Liniment. F. E. Gunter.—p. 1083.
Anaphylaxis Following Administration of Serum. E. R. C. Walker.—p. 1084.

Absorption of Mercurials by Skin.—The investigation of Wild and Roberts disclosed that all mercurials, when rubbed into the skin, were absorbed to some extent from all the bases tested. In all cases the greatest absorption took place from the lard basis, and the amount of absorption with the lard basis increases more with a prolonged rubbing than with other bases. Hydrous wool fat was absorbed to a greater extent than lard, but the mercurial was not absorbed with it, so that the absorption of mercury was actually less than from a lard ointment of equal strength. The absorption from a paraffin base was always less than from a lard base. The amount of mercurial absorbed was proportional to the amount of mercurial in the ointment, at any rate up to 30 per cent of the mercurial. Of the different mercurials examined, mercuric oxide was the most readily absorbed, either as an ointment or in the form of the official oleate. This, however, is not suitable for use when the general absorption of mercury is desired, as ointments containing more than 10 per cent of the oxide cause considerable irritation of the skin. Ammoniated mercury and mercuric salicylate were absorbed almost as well as the oxide. Calomel was absorbed to a less extent than any of the other mercurials examined. Metallic mercury was absorbed rather less than the oxide, but can be used in stronger concentration without causing undue irritation of the skin. The official mercurial ointment with a lard base seems to be the best preparation for insuring the general absorption of mercury. The inunction of 4 Gm. for two minutes gave, on an average, an absorption into the body not exceeding 0.12 Gm. of mercury, and after ten minutes' inunction an absorption not exceeding 0.17 Gm.

Use of Nicotine in Treatment of Parkinsonism.—Thirteen patients with postencephalitic parkinsonism have been treated with nicotine by Moll. Nine showed improvement; four remained unaffected. An initial dose of $\frac{1}{30}$ grain (2 mg.) was given thrice daily at the beginning of the treatment and was continued for a few days. If at the end of this period the pulse chart did not show any appreciable change, the dose was increased. Such a procedure was adopted every time the dose was increased until the full dose was reached. This varied between $\frac{1}{10}$ and $\frac{1}{6}$ grain (0.006 and 0.012 Gm.) thrice a day, and was always followed by a well marked rise of the pulse rate of at least 12 to 20 beats a minute. The patient was afterward kept on the full dose for two or three weeks or until symptoms of intolerance set in. In many cases, however, it was found that nausea and vomiting promptly disappeared after the dose had been repeated a few times, and that the treatment could be continued. No permanent cures were effected. The treatment should therefore be repeated at frequent intervals, say, of from two to three months. Nicotine had an undoubted action in reducing muscular rigidity, and this was ascribed to the paralyzing effect of the drug on the prespinal reflex arc subserving plastic tone, thus throwing new light on the dual nature of muscular tone and adducing fresh evidence that one element of muscular tone is under the control of the sympathetic nervous system.

Bilirubin.—Collinson and Fowweather are of the opinion that, while the bilirubin giving the prompt direct van den Bergh reaction is an alkali salt, probably the ammonium salt, the form that is responsible for the indirect reaction (that is, in the presence of alcohol and after the precipitation of protein) is the free acid.

China Medical Journal, Shanghai

40: 409-516 (May) 1926

Chronic Laryngeal Stenosis Complicating Kala Azar and Diphtheria. A. M. Dunlap.—p. 409.
*Reputed Diuretic Action of Huang Ch'i. C. F. Schmidt.—p. 415.
Injection Treatment for Hemorrhoids. H. E. Crowe.—p. 417.
Fostering Psychoneuroses in Infancy. A. H. Woods.—p. 420.
Some Newer Remedies. B. E. Read.—p. 428.
Gum-Mastic Test. S. D. Joffick.—p. 431.
*Mercurochrome and Tartar Emetic in Schistosomiasis. G. T. Tootell.—p. 440.
Local Anesthesia. H. W. S. Wright.—p. 448.
Two Cases of Actinomycosis of Lung. K. M. Woo and M. P. Young.—p. 461.
Case of Subacute Combined Degeneration of Cord Associated with Ankylostomum Duodenale and Achlorhydria. P. V. Early.—p. 465.

Diuretic Action of Huang Ch'i.—After other medication had failed the symptoms improved and albuminuria disappeared under treatment with a decoction of huang ch'i. Schmidt investigated this drug, but failed to find any alkaloid, glucoside or other potent principles. Physiologic experiments conducted on frogs and dogs yield no evidence that the drug can improve circulation or cause diuresis. Nothing is known of its effects on nephritic animals.

Mercurochrome and Antimony and Potassium Tartrate in Schistosomiasis.—Tootell asserts that mercurochrome is the drug of choice for treating patients during the early stages of the disease, when there are no serious complications, and when the hemoglobin count is 70 per cent or above. In cases of long standing, in which the patients have low resistance, it is better not to submit them to the reaction from injection of mercurochrome, but to give antimony and potassium tartrate in increasing doses intravenously, and tonics containing iron and arsenic by mouth.

Glasgow Medical Journal

23: 393-468 (June) 1926

*Supporting Bulging Brain in Extensive Decompressive Trephining. A. Young.—p. 393.
Hospitals in Relation to Public and Profession. A. E. Maylard.—p. 404.
Present Day Methods in Treatment of Tuberculosis. J. Crocket.—p. 420.
*Paroxysmal Tachycardia of Ventricular Origin with Stokes-Adams Syndrome: Retrograde Conduction; Partial Heart Block. G. A. Allan. —p. 440.

Decompressive Trephining Operation.—Young turns down a very large skin flap, including all layers of the scalp except the pericranium; then turns up a smaller flap consisting of temporal fascia and pericranium. Next the skull is opened widely. Then the dura is opened by raising a third flap, which is, like the first, turned downward. It should be sufficiently less in area than the size of the bone gap to allow of the marginal portions of dura furnishing some protection to the brain from pressure and laceration on the bone edges. When the brain has been sufficiently inspected and any necessary detail of technic has been carried out, the second flap—the fascial-pericranial flap—is brought down and sutured to the free edge of the dural flap (the third flap), or, if there is excess, to such a level of this as to give the necessary degree of support to the bulging brain, the excess being used either to reinforce the support, as indicated above, or being cut away and used to make good any defects at the lateral margins or angles of the gap. Hemostasis having been adequately provided for in respect of the first, or scalp, flap the latter is then replaced, and its edges are carefully and closely sutured in place once more. A copious absorbent external dressing, firmly bandaged, is then applied over the whole. The procedure is presented as of value in extensive decompression operations.

Paroxysmal Tachycardia with Stokes-Adams Syndrome.—A case of paroxysmal tachycardia arising in the right ventricle is recorded by Allan. The ventricular rate was unusually rapid, being from 230 to 270 in recorded paroxysms. During paroxysms the patient presented the Stokes-Adams syndrome. Retrograde stimulation of the auricle was present with 2 to 1 retrograde heart block. Quinidine sulphate had a distinct effect in controlling the paroxysms.

Lancet, London

1: 1241-1292 (June 26) 1926

*Carbohydrate Metabolism in Health and Disease. H. MacLean.—p. 1241.
*Nonspecific Protein Injections in Chronic Arthritis. W. Yeoman.—p. 1246.
*Pathologic Action of Light on Eye. II. W. S. Duke-Elder.—p. 1250.
*Simplified Technic for Blood Transfusion by Kimpton-Brown Method. W. B. Gabriel.—p. 1255.
*Acute Abdominal Emergency. O. W. Roberts.—p. 1256.
Serious Hemorrhage Following Opening of Peritonsillar Abscess. N. Patterson.—p. 1256.
*Gangrene of Nose Due to Diabetes Mellitus. K. Ardeshir.—p. 1256.
Two Cases of Horsepox. F. W. M. Greaves.—p. 1257.

Carbohydrate Metabolism in Health and Disease.—In this lecture MacLean discusses: renal glycosuria and the dangers of insulin in this condition; sugar tolerance tests in glycosuria; glycosuria of pituitary and thyroid gland origin, and metabolism in diabetes, especially of fats.

Nonspecific Protein Injections in Chronic Arthritis.—In the fifty cases reported on, Yeoman used typhoid-paratyphoid vaccine made up in the approximate proportions of two parts of *B. typhosus* to one part each of *B. paratyphosus* A and B. The initial dose was 50 million, each subsequent dose being increased by 100 million. Four days elapsed between injections. All patients had balneologic treatment in the interval between the injections. Of the fifty patients, after an average stay of four weeks in the hospital, forty-four were discharged as definitely improved, and six as no worse but no better. The types that respond best are the acute and subacute in which the disease is confined to the periarticular tissues—in these cases permanent benefit is assured in over 90 per cent. When the joints themselves are affected, definite improvement occurs with arrest of the disease, but naturally bony changes cannot be altered. Though the reactions are severe the contraindications are few—disease of the myocardium, gross kidney disease, chronic alcoholism, tuberculosis and syphilis being the chief. In view of the proved ability of these injections to cut short an attack of rheumatic fever, Yeoman pleads for an extended trial of this treatment in the hope that much invalidity from heart disease might be prevented. The patients who do not do well are those of the menopause group of the chronic villous type, and those showing achylia.

Rôle of Light in Cataract Production.—The thesis is advanced by Duke-Elder that the primary cause of cataract generally is probably to be associated with the direct action of incident radiant energy of any wave length on the lens, increasing the lability of its colloidal system and deranging the autoxidation system on which its metabolism depends. This renders its proteins more prone to coagulation by changes in the hydrogen ion concentration (which also affects the autoxidation system directly), changes in the salt content, osmotic changes determined locally by the action of radiant energy on the lens capsule or by general metabolic disturbances, and by possible continuous photosensitization. To these must be added the influence of more subtle factors inseparable from the economy of so complex a physicochemical mechanism as is living matter.

Modification of Kimpton-Brown Blood Transfusion.—Gabriel describes a method for filling a Kimpton tube through a needle. The needle is the Kaliski pattern, gage 15, with a metal connecting piece and a short length of rubber tubing (size 9, 1½ inches long), which completes the junction with the Kimpton tube. The needle, connecting piece and rubber tubing are prepared by boiling; it is not necessary to paraffin them. The apparatus is put together in such a way that the end of the nozzle of the Kimpton tube just touches the metal coupler, so that the rubber tube is practically not in contact with the flowing stream of blood.

Acute Abdominal Emergency.—Roberts relates the case of a boy, aged 6, who, while playing on a ladder, slipped and fell a few feet, injuring the upper part of the right thigh; shortly afterward he vomited and complained of abdominal pain. He was put to bed and three days later had recovered sufficiently to be allowed to get up; but the abdominal pain then returned and two days later his physician ordered his admission to hospital. On examination there was a small abrasion about 2 inches below the inner end of Poupart's ligament on the right side; the lower half of the abdomen showed no respiratory movements, and the right side was tender and rigid. Clinically the condition appeared to be due to an appendix abscess. By a right paramedian incision a quantity of free purulent fluid was found, and the small intestine was seen to be distended. On investigation of the cause of the distention a hard, irregular body was discovered passing across the right iliac fossa and penetrating the root of the mesentery; when it was manipulated out of the wound it proved to be a twig of a tree, which must have been driven into the abdominal cavity at the time of the fall. This twig had pierced the femoral ring, the parietal peritoneum and the root of the mesentery, and had come to rest alongside the second part of the duodenum. Round the twig there was an abscess, containing thick, creamy pus and walled by the tissues of the iliac fossa and by coils of small intestine. A large drainage tube was inserted into the abscess cavity and the abdomen closed. The boy made an uninterrupted recovery.

Gangrene of Nose Due to Diabetes.—Ardeshir's patient was only 8 years of age. The slough was removed surgically. The urine became sugar free after the administration of 20 units of insulin over a period of three days. The wound healed promptly.

Bulletin de l'Académie de Médecine, Paris

95: 589-601 (June 15) 1926

*Iodine Treatment of Encysted Hydrocele. P. Bazy.—p. 592.
*Mechanism of Hydronephrosis. Legueu et al.—p. 593.
The Booklet on Infant Hygiene Brought Down to Date.—p. 598.

Encysted Hydrocele.—Bazy used successfully iodine injections in treatment of hydrocele; among others, in a case of epididymal cyst and in another of a vaginalis hydrocele, containing, respectively, 100 and 450 cc. of fluid. He used a tincture made with 1 Gm. of iodine and 12 Gm. of alcohol. After local anesthesia with cocaine, the fluid was aspirated and then a corresponding amount of the iodine was injected, and left for five minutes. The patients were kept in bed for a few days, but only as a precautionary measure. The method seems to be harmless, simple and effectual.

The Physiology of the Renal Pelvis in the Light of Pyeloscopy.—Legueu, Fey and Truchot describe their technic for roentgen-ray screen examination of the renal pelvis, as applied in 600 normal or pathologic subjects. They conclude that the pelvis of the kidney possesses special motor centers, controlling its contractions, and that the upper orifice of the ureter presents a kind of sphincter. Hydronephrosis in certain cases may be induced by total or partial chronic retention of urine from morbid contraction of this sphincter. Complete and acute retention may be due to spasmodic contractions of the kidney pelvis. Hydronephrosis thus may be a neuromuscular disturbance of purely dynamic origin. Mechanical factors may play only a secondary rôle, except in instances of calculi. Evidently a conservative operation is futile in chronic hydronephrosis, while any intervention is needless in the acute form. Antispasmodic therapy is indicated in the latter case. In infectious pyelonephritis with slight distention, the prognosis is benign; irrigation of the pelvis, supplemented by vaccine treatment, answers the purpose. In the graver cases, this treatment may fail, the renal infection entailing pyonephrosis.

Bulletins de la Société Médicale des Hôpitaux, Paris

50: 955-1001 (June 11) 1926

*Roentgenotherapy of Brain Tumors. A. Coyon et al.—p. 955.
Idem. A. Cain et al.—p. 958.
*Heart Malformations. Brulé and Gilbert-Dreyfus.—p. 963.
Multiglandular Syndrome in Dwarfism. R. Benard et al.—p. 967.
Nervous Leprosy with Spasms. Hudelo et al.—p. 971.
Silent Lesions of the Heart. E. P. Benoit.—p. 976.
Anemia from Neo-Arsphenamine. Widal and Bertrand-Fontaine.—p. 980.
Septicemia from Filtrable Virus from Rat Bite. Brodin and Dujaric de la Rivière.—p. 985.
Study of the Pigments, Biliary Salts and Cholesterol in a Fistula Case. Chabrol et al.—p. 992.
*Treatment of Gangrene of the Lung. P. Jacob.—p. 995.
Effect of Boyden Meal on the Gallbladder. R. Feissly.—p. 998.

Roentgen Rays in Treatment of Brain Tumors.—Coyon, Solomon, Willemin, Cain and Rachet used roentgen rays in two cases with cerebrospinal hypertension, probably from a tumor of the brain. Penetrating rays were applied to both temples and to the back of the head. From 500 to 1,000 R. units were used for each exposure; a total of 3,500 units for each field of irradiation. The sittings took place two or three days apart. Headache, dizziness and vomiting subsided after four sittings; simultaneously the choked disk returned toward normal, and the sight markedly improved. A month later, the patients seemed to be clinically cured. As a precautionary measure, a second series, totaling 7,000 units, was given in one case.

Eighteen Years' Survival with Multiple Malformations of the Heart.—In Brulé and Gilbert-Dreyfus' case, complete atresia of the tricuspid valve was associated with considerable atrophy of the right ventricle, hypertrophy of the left ventricle and an interventricular communication. There was also total stenosis of the pulmonary artery, and dilatation of both auricles, with persistence of Botallo's duct. The girl suffered from dyspnea on exertion and cyanosis. She died at the age of 18, from bilateral pulmonary tuberculosis of rapid course.

Recovery from Pulmonary Gangrene Under Pneumothorax.—In Jacob's case, an artificial unilateral pneumothorax had induced the cure in eight months of a chronic pulmonary gangrenous process with a large cavity.

Comptes Rendus de la Société de Biologie, Paris

94: 1049-1108 (April 30) 1926. Partial Index

Spirochete of Tuberculous Hemoptysis. Bezançon and Etchegoin.—p. 1056.
Oral Vaccination Against Cholera. Horowitz-Wlassowa and Pirojnikowa.—p. 1067.
*Local Immunization Against Tuberculosis. N. Jizuka.—p. 1070.
*Avitaminosis and Tuberculosis. Lawrynowicz and Bohdanowicz.—p. 1085.
*Output of the Heart in Pregnancy. S. A. Gammeltoft.—p. 1099.
*Manganese and Tuberculin Shock. L. E. Walbum.—p. 1106.

Local Immunization of the Lung Against Tuberculosis.—Jizuka injected Besredka's egg antigen into the trachea of guinea-pigs and rabbits. Three injections were made. A week later the animals were inoculated, by the same way, with living tubercle bacilli. At necropsy, the pulmonary lesions were less pronounced in the animals thus treated than in the controls.

Influence of Avitaminosis on Experimental Tuberculosis.—Lawrynowicz and Bohdanowicz' experiments showed that development of tuberculosis was more rapid in mice on a deficiency diet. The results seemed to be analogous to those with an insufficient amount of food.

Minute Output of the Heart in Pregnancy.—Gammeltoft estimated the minute volume output of the heart in five pregnant women. It was constantly increased by about a liter and a half per minute. This is probably due not only to the increase of metabolism, but also to an augmented volume of blood. The latter may induce hypertrophy of the heart in pregnancy.

Manganese in Prevention of Tuberculin Shock.—Walbum succeeded in preventing shock from tuberculin injection, by treating tuberculous guinea-pigs with manganese chloride. This may be due to a stimulated destruction of tuberculin in the animal organism under the influence of this salt. It may also explain the subsidence of fever in pulmonary tuberculosis under the effect of manganese.

Jour. de Physiol. et Path. Gén., Paris

24: 1-214, 1926

*Stimulants for the Respiration. E. de Somer.—p. 1.
Physiology of the Blood Platelets. Klecki and Pelczar.—p. 11.
*Peripheral Circulation in Man. D. Daniélopolu et al.—p. 27.
Nocturnal Acuity of Vision. J. Beyne and G. Worms.—p. 38.
Functions of the Cerebellum. Papilian and Cruceanu.—p. 47.
Lactic Acid of the Blood. Collazo and Morelli.—p. 54 and p. 76.
*Hemolysis in Transfusion. R. Cruchet and J. Caussimon.—p. 61.

The Stimulants for Respiration.—De Somer experimented with carbon dioxide, hydrochloric acid and sodium. He introduced carbon dioxide into the lungs of dogs through a tracheal canula. This was followed by a complete separation of the vocal cords, as in a deep inspiration, persisting for a certain time. The distention of the pulmonary alveoli by the carbon dioxide provides a peripheral stimulus, which is conducted to the respiration center by the vagi. This results in a reflex opening of the larynx, and exaggerated inspiration. Hydrochloric acid or sodium were injected intravenously. The first seems to increase the concentration of carbon dioxide in the alveoli, thus reinforcing the inspiratory "influx." The action of sodium is the reverse; consequently it causes exaggeration of the expiration. Not the hydrogen-ion concentration of the blood, but the carbon dioxide is a stimulant for reflex respiration.

The Peripheral Circulation in Man.—Daniélopolu, Radovici and Aslan's study was conducted on a man after left cervicothoracic sympathectomy for essential epilepsy. The operation included extirpation of the inferior cervical and the first thoracic ganglions. The plethysmograph showed the occurrence of peripheral vasodilatation during muscular work. Evidently the vasodilator nerves do not pass through the stellate ganglion, and thus they remained intact after the operation. It is probable that these nerves pass from the spinal cord through the posterior roots; they may enter the peripheral nerves directly, without traversing the rami communicantes. Muscular exercise induced also vasoconstriction

in the limb operated on. This seems to prove that the phenomenon is a mechanical one. It occurs evidently without participation of the vasoconstrictor nerves, since the latter had been removed by the operation.

Rôle of Hemolysis in Accidents from Transfusion of Blood.—Cruchet and Caussimon emphasize that blood transfusion between different animals or from animal to man, is always accompanied by slight hemolysis, independent of the agglutination. It induces a urinary syndrome with minimal traces of albumin, with or without casts and erythrocytes; there may be traces of urobilin. These phenomena appear a few hours after the transfusion; they vanish in two days at most, without any consequences. Grave accidents were observed with blood transfusion from horse to dog. They presented the clinical picture of rapidly progressive fatal anemia; the kidney disturbances seemed to be only of secondary importance.

Paris Médical

59: 573-604 (June 19) 1926

Gynecology in 1926. L. Houdard and L. Bonnet.—p. 573.
Conservative Operations on the Adnexa. Forgue.—p. 580.
Uterine Hemorrhages of Ovarian Origin. A. Schwartz.—p. 588.
Obstetrics in 1926. J. Ravina.—p. 590.
Induced Abortion for Vomiting of Pregnancy. J. L. Audebert and A. Galy-Gasparrou.—p. 593.
*Retraction of the Uterus During Delivery. F. Commandeur.—p. 597.
Anesthesia in Obstetrics. L. Funck-Brentano.—p. 601.

Retraction of the Uterus During Delivery.—Commandeur explains that retraction of the uterus must not be clinically confounded with contraction. The physiologic difference consists in a pronounced and transient shortening of the uterine fibers in contraction, and in the slight but continuous shortening in retraction. The latter is a physiologic factor in the involution of the uterus in the first days after childbirth. During delivery, retraction seems to occur only when the membranes have ruptured and the amniotic fluid has escaped. It may be present as the result of tetanic contractions or abnormal presentations. The whole of the uterus may be involved in the retraction; separate retraction rings may be recognized by external palpation; they may leave imprints on the fetus. The retraction is not influenced by drugs which usually induce paralysis of the uterine fibers, or even by deep anesthesia. It yields only slightly to dilation procedures. While mild forms of retraction of the uterus may pass unobserved, the pronounced forms may entail grave dystocia or even rupture of the uterus. Early recognition of the retraction may prevent grave consequences.

59: 605-620 (June 26) 1926

Importance of Observation in Medicine. Saint-Jacques.—p. 605.
Sunbaths in Pulmonary Tuberculosis. Hervé et al.—p. 609.
Chemotherapy of Tuberculosis. A. Grigaut and A. Tardieu.—p. 612.
*Chancroid. Lortat-Jacob and Poumeau-Delille.—p. 618.

Vaccine Treatment of Chancroid.—Under the vaccine treatment the buboes rapidly subsided, but the chancroid persisted unmodified in ten of the fifteen patients with soft chancre treated by Lortat-Jacob and Poumeau-Delille with Ducrey's streptobacillus vaccine. About 225 millions of the bacilli were usually given at the first intravenous injection, and then 335, 450 and 550 millions. From three to five injections were given, the intervals, three or five days. The general reaction was always intense. The treatment failed in ten cases; only five patients were apparently cured, one of them incompletely. While almost all the buboes were cured in two or three days, the chancroid healed only in 30 per cent. The vaccine seems to be most effectual in combating the complications rather than the chancroid itself. It may be advantageously combined with local treatment.

Presse Médicale, Paris

34: 801-816 (June 26) 1926

*Roentgenoscopy of Skull in Syphilis. Léri and Cottenot.—p. 801.
Digestive Disturbances in Pernicious Anemia. J. Mouzon.—p. 807.

Roentgen-Ray Diagnosis of Tardy or Congenital Syphilis of the Skull.—Léri and Cottenot report nine cases in which neither the clinical features nor the Wassermann test suggested the diagnosis of syphilis. Nevertheless, roentgen-ray examination revealed tertiary lesions of the inner table of the skull. Four of the patients presented general or jacksonian epilepsy, three had severe headaches, with facial paralysis in one case and dizziness in another. A gumma of the bones was found in one patient, ulceration or exostosis or both in the others. The patients became greatly improved under bismuth treatment. Penetrating rays should be avoided. The vertex and the base of the skull should be examined separately, and in different positions of the head.

34: 817-832 (June 30) 1926

Pathogenesis of Arterial Hypertension. Laubry and Doumer.—p. 817.
*Attitude as Diagnostic and Therapeutic Measure. G. Leven.—p. 821.
Rôle of the Kidney in Diabetes. H. Chabanier et al.—p. 822.

Diagnostic and Therapeutic Value of Change of Attitude in Certain Conditions.—Leven emphasizes that aerophagy and air in the colon may entail gastro-intestinal, respiratory and circulatory syndromes simulating those from organic lesions. The clinical picture of angina pectoris or asthma, from aerophagy, can hardly be differentiated from that of the essential affection. Only changing the patient's position may disclose the real cause of the disturbance. Aggravation of pathologic conditions under the gas distention may mislead the prognosis in disease of the digestive tract, lung or heart. He describes a case in which slight pulmonary congestion was associated with intense dyspnea. The latter disappeared as soon as the patient turned from the dorsal position to the left side. It returned as she changed to lie on her back. Evidently the dyspnea was caused by compression of the lung by a segment of the intestine, distended with air. Analogous compression of the lung and heart caused severe dyspnea and tachycardia in an asthmatic subject. He describes also two cases in which distention from air in the bowel simulated appendicitis in one, and "epidemic" hiccup in another. Change of the patient's position brought immediate relief.

Revue Médicale de la Suisse Romande, Geneva

46: 389-452 (June 10) 1926

*The "Five O'Clock" Sign. C. Odier.—p. 389.
Purified Antitoxic Serums. E. Grasset.—p. 404.
*Calcium Treatment of Tuberculosis. M. Bothézat.—p. 409.
Early Laminectomy for Trauma Affecting the Spinal Cord. C. Perret.—p. 414. C'en.—p. 453.
Suffocating Bronchiolitis Relieved by Cesarean Section. L. Choquard.—p. 437.

46: 453-516 (June 25) 1926

Diverticular Sigmoiditis. M. Roch and J. Mozer.—p. 475.
Mental Confusion in Pregnancy. Chatillon and R. de Saussure.—p. 478.
Present Status of Mongolian Idiocy. Naville and de Saussure.—p. 481.

The Five o'Clock Sign.—Odier states that a neurotic, neuropathic tendency is generally found in patients whose complaints of various ills seem to stop toward evening, and they say they feel much better. It indicates a loss of nervous poise, maladjustment to occupation and social environment. The mornings, the Mondays, are dreaded and found dreary and full of ills. Persons with normal nerve tone usually feel better in the morning.

Intravenous Injections of Calcium Chloride in Tuberculosis.—Bothézat reports the results of calcium chloride treatment of thirty tuberculous patients during the last year. He used small doses of a 5 or 10 per cent solution. A dose of 5 cc. was injected intravenously, daily. A series consisted of twelve injections; and these series were repeated three or four times; in two cases even seven times, a week apart. No by-effects were observed with this method. In ten patients the treatment did not arrest the far advanced disease; eight have died. In thirteen the condition remained stationary, losing its progressive character. Seven presented a constant local and general improvement. The beneficial influence of the calcium chloride may have been due to regulation of the vagosympathetic balance, strengthening the cardiac systole and the increase of diuresis. He adds that as calcium chloride is eliminated soon after its absorption, it is not retained in the tuberculous foci. The usual doses do not exert any bactericidal action, nor do they induce any apparent reaction in the organism.

Schweizerische medizinische Wochenschrift, Basel

56: 561-584 (June 12) 1926

Donnan's Equilibrium. L. Michaud.—p. 561.
The Diet in Pregnancy and Nutrition. H. Guggisberg.—p. 564.
The Auditory Hair Cells. K. W. Zimmermann.—p. 566.
Hot Mineral Baths in Circulatory Disturbances. Kornmann.—p. 569.

Chirurgia degli Organi di Movimento, Bologna

10: 317-536 (April) 1926

*Trauma of Semilunar Cartilage. V. Ferrero.—p. 317.
*Periarterial Sympathectomy for Arthritis. A. Turco.—p. 333.
Congenital Scoliosis with Defective Development of Foot. R. Zanoli.—p. 346.
*Fate of Bone Wedge Implant. G. Faldini.—p. 357.
*Hip Joint Disease. J. Valls and J. Verbrugge.—p. 364.
Correction of Acquired Genu Recurvatum. L. de Gaetano.—p. 373.
Fracture of the Heel-Bone. E. Fiorini.—p. 403.
Fracture of One Condyle of the Femur. A. Bertocchi.—p. 429.
*Fracture of the Knee. R. Zanoli.—p. 463.
Metal Aids in Treatment of Fractures. A. Rossi.—p. 486.
Correction of Madelung's Deformity. A. Catterina.—p. 517.
Joint Between Clavicle and Coracoid Process. A. Possati.—p. 533.

Injury of the Semilunar Cartilages of the Knee.—In the five cases analyzed by Ferrero the lesion was different in each. The damaged cartilage was removed, with complete recovery of function, even to playing football. There were absolutely no objective signs of the injury in one case, and roentgen-ray examination was negative in all but one.

Periarterial Sympathectomy in Arthritis.—Turco's experiments on dogs confirmed his theoretical assumption that the hyperemia induced by decortication of the artery would hasten the healing of an acute purulent arthritis and ward off ankylosis. No benefit need be anticipated in chronic cases. In acute arthritis the result was more apparent the shorter the interval since the onset.

Fate of Bone Wedge Implant.—Faldini's illustrations show the complete incorporation of the wedge in the bone four years after the operation for correction of paralytic talipes cavus.

Hereditary Nature of Coxa Plana and Arthritis Deformans.—Valls and Verbrugge explain that a hereditary predisposition in the hip joint may be roused by trauma, infection or endocrine derangement, and entail osteochondritis in the infant, coxa plana in the adolescent, and arthritis deformans in adults. In one of the three cases described, the mother, brother, aunt, uncle and cousins had the same affection; in another, the father and son. The roentgen rays may reveal the same pathologic condition in the apparently sound mate joint.

Fracture of the Knee.—Zanoli discusses the lessons learned from twelve cases of fracture of the lower epiphysis of the femur and twenty-two of the upper epiphysis of the tibia.

Pediatria, Naples

34: 625-688 (June 15) 1926

*Cod Liver Oil Vitamin. M. Flamini.—p. 625.
Urinary Organs in Whooping Cough. S. Cannata.—p. 662.
Epidemiology of Kala-Azar. F. Paradiso.—p. 664.
Hemorrhagic Diatheses. P. Ritossa.—p. 669.

Cod Liver Oil Vitamin.—Flamini studied in infants the antirachitic vitamin extracted from cod liver oil by Zucker's method. It improves the absorption and fixation of calcium, diminishes intestinal putrefaction and constipation, improves the resorption of fat, modifies eczema, cures rickets and spasmophilia and improves vagotonic manifestations, such as hives.

Policlinico, Rome

33: 825-859 (June 14) 1926

*Pseudoappendicitis from Malformation. A. Dami.—p. 825.
Asymptomatic Appendicitis in a Hemophiliac. A. Bonadies.—p. 829.
Optic Neuritis. E. Battoni.—p. 831.

Pseudo-Appendicitis from Malformation.—The constipation and symptoms of chronic appendicitis with exacerbations were due in Dami's patient to an internal hernia of the small intestine. It was located between the end of the ileum and a peritoneal fold connecting the latter with the cecum and the appendix.

33: 273-332 (June 15) 1926. Surgical Section

*Pulsating Tumors in Bone. R. Alessandri.—p. 273.
Fractures of the Humerus in Children. C. Colucci.—p. 315.
Congenital Mixed Tumor of the Mesentery. A. Piccinelli.—p. 322.

Pulsating Tumors in Bone.—Alessandri observed four cases of bone metastasis of hypernephromas; three of them were pulsatile. Such a metastasis in a bone may be the only one. Therefore, extirpation of the original tumor, which may be quite small at the time, should be taken into consideration.

Riforma Medica, Naples

42: 505-528 (May 31) 1926

Hemorrhagic Diatheses. F. Galdi.—p. 505.
Pelvic Metastases of Cancer. V. Palumbo.—p. 515.
Mineral Mud Treatment. A. Vinaj.—p. 522.
Bronchial Spirochetosis Plus Syphilis. C. Maderna.—p. 524.

Anales de la Facultad de Medicina, Montevideo

11: 1-64 (Jan.) 1926

*Stenosis of the Duodenum. G. Arrizabalaga.—p. 1.
*Traumatic Osteoma in the Thigh. J. Cunha.—p. 5.
*Uricacidemia. A. Sáenz and M. Haendel.—p. 15.
*The Lactic Acid in the Blood. I. J. A. Collazo and J. E. Morelli.—p. 30.
*Local Vaccine Treatment for Staphylococcal Processes. C. Stajano and E. Hormaeche.—p. 46.

Stenosis of the Duodenum.—Arrizabalaga located the stenosis by serial radiography, and cured the woman completely by a duodenojejunostomy through the mesocolon—the first operation of the kind applied in Uruguay. The stenosis seemed to be secondary to a healed ulcer low in the duodenum, although there was no ulcer history.

Traumatic Osteomas of the Thigh.—Cunha reports three cases identical in origin and aspect. The large osteoma developed within four to six weeks after a kick from a steer or similar local trauma. The oval tumor extended beyond the middle third of the femur. The diagnosis had been osteosarcoma or syphiloma, but a partial operation in the third case confirmed the formation of layers of bony tissue in dense connective tissue in the muscle. Some roentgenograms are reproduced.

Test for Uricacidemia.—Sáenz and Haendel have simplified the usual technic. They mix 2 cc. of the serum with 2 cc. of a 20 per cent solution of trichloracetic acid, and filter. They add 2 cc. of the filtrate to 0.8 of the Folin-Denis reagent and 6 cc. of a 40 per cent solution of sodium carbonate. The tint of the fluid is then compared with that of a test tube containing 3 cc. each of Fehling I and Fehling II plus 2 cc. of distilled water. This serves as the colorimeter as it corresponds to a 0.01 per cent solution of uric acid treated as described. If the tints are identical, the blood contains 2 per cent of uric acid.

Lactic Acid in the Blood.—The research was done partly at Warsaw and partly at Paris, seventeen different species of animals being examined. In twelve men, the range was from 10 to 19.2 mg. per hundred cubic centimeters. In the animals, each species seemed to have a special average; in hogs the range was from 39 to 48.1. The highest figure (120) was in a crab. There was no constant relation between the lactic acid and the dextrose content of the blood.

Local Vaccine Treatment of Staphylococcal Processes.—Gauze impregnated with antistaphylococcus vaccine has been regularly applied to furuncles by Stajano and Hormaeche during the last year, with excellent results. One woman had had eighty furuncles in the course of a year, but under this local autovaccine treatment the pain was relieved and the processes aborted in a few hours, or suppuration hastened, and the cure of the furunculosis was soon complete. The list includes several cases of a furuncle on the face, but the effect was alike in all, frank suppuration and resolution in about twenty-four hours, or the process aborted in ten. The cultures of *Staphylococcus aureus* were made from furuncle pus and were killed with iodine or heat (55 C.)—about 10,000 millions per cubic centimeter.

Anales Soc. Mex. de Oftalmología, Mexico City

5: 73-96 (Dec.) 1925

*Teaching Writing to the Blind. D. M. Vélez.—p. 73.
Internal Secretions and Pathology of Eyes. De Jesús González.—p. 81.
Treatment of Secondary Cataract. A. F. Alonso.—p. 83.
Afferent Fibers in Corti's Ganglion and Other "Exteroceptors." I. Ochoterena.—p. 85.

Teaching Reading and Writing to the Blind.—Vélez describes a simple method which has been giving satisfactory results in the primary school for the blind in Mexico City for the last two years. The training is in letters of the ordinary type, not the Braille system which requires a specialized apprenticeship to use or read. The letters are outlined with a row of brass clips, such as are used to fasten together the pages of legal documents. A large letter A will require fourteen such clips, the rounded heads forming the outline of the letter as the right forefinger traces it. The card is held between the thumb and forefinger of the left hand, and these fingers, held the same distance apart, form a frame in which the blind person can draw the outline of the letter he has learned from the cards. Vélez is now studying a means to draw the outline of the letter with some sticky ink, such as a solution of sodium silicate, to which sand dusted over it would adhere. If this proves feasible, the letter drawn can be read with the fingers of the blind as well as with the eyes of the seeing. Children learn these brass clip-outlined letters readily, and reproduce them excellently, and thus are able to communicate with any one. The article is illustrated.

Archivos de Endocrinología y Nutricion, Madrid

4: 1-56 (Feb.) 1926

*Insulin in Suprarenal Insufficiency. G. Marañón.—p. 3.
Symmetrical Lesions of the Knees. G. Marañón and Bonilla.—p. 19.
Pituitary and Diuresis. Blanco Soler and Pardo.—p. 27. C'td.
Metabolism and Exophthalmos in Hypothyroidism. Blanco Soler.—p. 44.

Action of Insulin in Suprarenal Insufficiency.—Marañón noted in two cases of Addison's disease that the suprarenal insufficiency had evidently rendered the patients more susceptible to insulin. Ordinarily harmless doses (5 units) induced grave symptoms after an interval of three hours, convulsions, coma and death, all in a few minutes. Necropsy showed complete destruction of the suprarenals. In a second case, 10 units were followed by rapid and intense hypoglycemia that might have been fatal if sugar had not been injected at once and ingested. Tests of other patients confirmed the sensitization to insulin entailed by suprarenal deficiency. The physiologic treatment for insulin accidents seems to be with epinephrine. In fatal diabetic coma the suprarenals are generally found diseased. This fact should not be forgotten when coma persists after insulin has conquered the acidosis.

Gaceta Médica de Caracas

33: 65-80 (March 15) 1926

Intracardiac Injection of Epinephrine. Villegas Ruiz.—p. 65.
Postoperative Retention of Urine. Idem.—p. 66.
Experiences with Autohemotherapy and Autogenous Vaccines in Otorhinology. D. R. Iriarte.—p. 68.
*Mycoses in Venezuela. R. Medina Jiménez.—p. 69.
Vegetable Ferments. E. Noguera Gómez.—p. 76.
Therapeutic and Chemical Properties of Saponins. Idem.—p. 78.

Mycoses in Venezuela.—Medina Jiménez remarks that Venezuela offers a fertile field for study of pathogenic fungi. In the principal focus of mal del pinto, at the foot of the Andes, nearly the entire rural population is affected and the majority of laborers in the towns; in other regions, up to 10 per cent. The patches may be black, red, white or blue. He has encountered also cases of sporotrichosis, trichophytosis, mycetoma and an itching desquamating eruption restricted to the fingers and toes. He has cultivated the fungus responsible for this affection—which is known locally as sabañón—from the black mud of the shores of the plains rivers.

33: 97-112 (April 15) 1926

The Medicinal Plants of Venezuela. E. Noguera Gómez.—p. 98.
*Septicemia of Dental Origin. A. Bejarano Fuentes.—p. 102.

Septicemia of Dental Origin.—Bejarano Fuentes reports that a young woman had been having recurring fever for nine months, especially pronounced in the evening and night, with pains in the gums during the febrile periods. Complete recovery followed removal of an apparently sound tooth which proved to be infected.

Lisboa Médica, Lisbon

3: 169-216 (April) 1926

Modern Views on the Pathology of Pulmonary Tuberculosis. Pulido Valente.—p. 169.
*Calculi in Prostatic Urethra. A. Gomes.—p. 181.

Calculi in the Prostatic Urethra.—Gomes cites Rochet and Moutot to the effect that the formation of a calculus in the prostate is extremely rare; they were able to collect only fifteen authentic cases. He found radiologic evidence of a large calculus projecting from the bladder into the urethra, with signs of other calculi in the left kidney and pelvic ureter, in an adolescent. The bladder-urethra calculus was extracted by a suprapubic cystostomy. It was 8 cm. long and weighed 30 Gm. The left kidney was also removed, but the ureter calculi were not molested. The boy is convalescing smoothly. In another case, in a man aged 74, ten calculi were discovered in a diverticulum in the enlarged prostate, accompanying a large calculus in the bladder.

Prensa Médica Argentina, Buenos Aires

12: 1173-1204 (May 20) 1926

Blood Calcium and Its Regulation by Endocrines. Waldorp.—p. 1173.
*Palilalia as Sequela of Encephalitis. J. C. Vivaldo.—p. 1186.
A Hemogregarina in Iguanas in Argentina. S. Mazza.—p. 1192.

Speech Disturbances as Postencephalitic Sequelae.—A farm laborer, aged 27, developed ocular spasms and mental disturbances traceable to an attack of epidemic encephalitis two years before. A tendency to palilalia was marked, the patient repeating several times each phrase he spoke. There was no tremor although other signs of parkinsonism were pronounced.

Repertorio de Medicina y Cirugía, Bogota

17: 301-360 (March) 1926

Tuberculous Peritonitis of Unusual Form. Jenaro Rico.—p. 306.
Leprosy Masquerading as Rheumatism. Forero Rubio.—p. 312.
*Eye Affections of Dental Origin. E. Llamas.—p. 314.
The Bucuramanga Yellow Fever Epidemic of 1923. D. Hernández Bautista.—p. 334. C'td.

Ocular Affections of Unsuspected Dental Origin.—Llamas describes four striking cases in which extraction of teeth which proved to be infected cured symptoms of long standing. One woman had suffered for ten years from recurring rhinitis, headaches, rheumatism, chills and swelling of the feet, all of which permanently subsided within a month. In a case of corneal ulcer, with iritis and photophobia, the condition had been aggravated by tentative arsenical treatment but improvement began at once after extraction of some molars, as also in a case of intense pains in the eye with iridocyclitis, and in one of chronic smarting in the eyes and impairment of vision, with chronic tremor of the hands rebellious to months of institutional treatment. After removal of a tooth that had been bridged three years before, the symptoms, including the tremor, rapidly disappeared.

Revista de Cirugía, Buenos Aires

5: 145-192 (April) 1926

*Tuberculoma of the Transverse Colon. P. Chutro.—p. 145.
Torsion of the Greater Omentum. M. J. Vernengo.—p. 157.
Invagination Due to Meckel's Diverticulum. A. Buzzi.—p. 176.
Technic for Anterior Colporrhaphy. A. Gutiérrez.—p. 186.
Case of Blood Cyst in Liver. Jauregui and Etchégorry.—p. 189.
Visit to the Mayo Clinic's Experimental Farm. A. Fernández Saralegui.—p. 189.

Tuberculoma of the Transverse Colon.—Chutro has encountered seventeen cases of a tuberculoma of the cecum, and others in the terminal portion of the large intestine, but the case described here with numerous photomicrograms is the first in which the transverse colon was the site of the lesion. Symptoms of obstruction compelled intervention, and there have been no disturbances since the resection of that segment of the bowel. The man, aged 35, has gained 23 Kg. in weight during the year since. Cancer had been assumed at first.

Revista Médica de Barcelona

5: 433-528 (May) 1926

*Iodized Oil in Gynecology. F. Carreras et al.—p. 436.
*Radiotherapy in Whooping Cough. A. Pinós and J. M. Pujadas.—p. 447.
Operation for Imperforate Anus with Congenital Rectovaginal Fistula In Woman Aged 39. Ponjoan.—p. 454.
Various Deformities of the Face. A. Schüller.—p. 459.
*Vaccination Against Typhoid. P. Domingo and J. Vidal.—p. 465.
Present Status of Bacteriophage Question. Durán Reynals.—p. 469.

Iodized Oil in Gynecologic Exploration.—Carreras and two roentgenologists comment on the advantages of lipiodol in examination of the uterus and tubes, especially with inflammation in or around the adnexa. In one case of supposed cancer of the body of the uterus, the iodized oil revealed that the disturbances were due to didelphys malformation. Twelve instructive roentgenograms are reproduced.

Roentgenotherapy in Whooping Cough.—Pinós and Pujadas ascribe the prompt benefit from roentgen-ray exposures in whooping cough to the rapid transformation of lymphoid tissue into cicatricial tissue under the influence of the rays. In several cases they witnessed great benefit from one or two series of roentgen exposures. The hypertrophied tracheobronchial glands rapidly subsided to normal size under this treatment; it seems to be promising likewise in tuberculosis at the hilum, and for the same reason.

Antityphoid Vaccination by the Mouth.—Domingo and Vidal say that it is not necessary to administer bile with the vaccine as Besredka recommends. It is simpler and easier to mix the bile with the vaccine. After trying this technic on guinea-pigs and on themselves, they have been applying it to others, and none have contracted typhoid.

Revista Mexicana de Biología, Mexico City

6: 27-70 (March) 1926

*Quantitative Test for Albumin. A. de Avila.—p. 27.
Wrisberg's Nerve the Nerve of Taste. Ortega.—p. 34.
"Comparative Physiology of Domestic Animals." The Nerves of Taste. G. Colin, 1854.—p. 43.
Relations Between the Pituitary and the Diencephalon Centers in Macacus Monkeys. A. Vergara.—p. 47.
Some Little Known Animal Food Resources of Mexico. Reza.—p. 50.

Quantitative Test for Albumin.—De Avila recalls that alkaline solutions are able to dissolve a limited quantity of coagulated albumin. The albumin becomes dissolved always in a certain ratio to the strength of the alkaline solution. On these properties is based the technic described for volumetric titration of the protein in a fluid. He mixes 5 cc. of the fluid to be tested with 5 cc. of the acid precipitating solution (alcohol 50 cc., distilled water 45 cc. and 5 Gm. of trichloracetic acid). The mixture is distributed in five test tubes. To each tube is then added 1 cc. of a 2 per cent solution of potassium hydroxid previously tinted red with a few drops of a solution of phenolphthalein. Then the alkaline solution is added to each tube in amounts from 0.1 to 0.6 cc. The first tubes may remain turbid and the tint not change, but a tube is finally reached in which the protein is dissolved, the fluid becomes clear, and the tint becomes deeper. If the cerebrospinal fluid contains considerable protein, it can be diluted for the test, or the reagents be diluted.

Semana Médica, Buenos Aires

1: 741-792 (April 15) 1926

*Tuberculous Peritonitis. M. Pozzo.—p. 741.
Factors Which Influence Artificial Feeding of Infants. Garrahan.—p. 744.
Vibration Treatment. O. C. Fernández.—p. 746.
Treatment of Cleft and Perforated Palate. R. A. Crespi.—p. 755. C'tn.
*Induced Pneumothorax in the Pregnant. J. J. Viton.—p. 776.
"Ossification of the Eye." J. Lijó Pavía.—p. 777.
Obesity in Children. G. Marañon.—p. 780.
Leduc's Research on Plasmogenesis. A. L. Herrera.—p. 788.
The Future of the Medical Career.—p. 789. Buenos Aires Letter, p. 341.

Discrete Tuberculous Peritonitis.—Pozzo diagnosed the fibroid adhesive peritonitis from the roentgenograms. There were no shadows to indicate duodenal or pyloric disease. The urachus was large, hard and stiff; this reaction on the part of the urachus is as constant and as instructive in tuberculous peritonitis as the reaction of the vas deferens with tuberculosis of the epididymis. In the first of the two cases described there was an apical process besides; the clinical picture had suggested appendicitis. In the other case, the gallbladder seemed to be responsible for the symptoms, but in both the laparotomy revealed the plastic adhesive peritonitis, fastening the duodenum to the liver, or the gallbladder to adjoining tissues. Roentgenoscopy showed the characteristic arrangement of the intestines in planes, with gases and fluids forcing them apart, leaving triangular spaces. Drainage of the gallbladder apparently cured one of the patients, but he returned two months later with the same symptoms as before.

Artificial Pneumothorax in Tuberculous Pregnant Women.—Viton relates that he treated nine pregnant women with tuberculous cavities or ulceration in the lungs by inducing pneumothorax. This allowed the pregnancy to progress to a normal delivery, and the women were able to nurse their infants. The children all survived and thrived except one from an extra-uterine pregnancy. The mother in this case died, as also one in whom miliary tuberculosis developed. These were the only fatalities. Conception occurred in one of the women while she was still under the influence of the collapse treatment, and this second pregnancy ran a normal course also.

1: 793-844 (April 22) 1926

Inaugural Lecture of Syphilography Course. N. V. Greco.—p. 793.
Welfare Work for Infants and Children at the Rivadavia Maternity. J. P. Garrahan.—p. 801.
Acute Embryonal Leukemia. J. R. Goyena et al.—p. 806.
*Paralysis from Intraspinal Anesthesia. P. Satanowsky.—p. 809.
The Publicity of Crime. D. E. Caravias.—p. 817.
*Organotherapy in Fowls. P. Heredia.—p. 819.
Meckel's Diverticulum. E. Stincer.—p. 825.
Sulphur and Catalysis. Armingeat.—p. 838.

Paralysis of the Rectus Externus from Intraspinal Anesthesia.—Satanowsky relates that intraspinal anesthesia has been applied in the last three years in Arce's service at 1,022 operations. There was slight headache in twelve cases, intense in nine, vomiting in five, syncope in three, and in six cases paralysis developed. It involved the arm, the body below the thorax, the oculomotor muscles or the peripheral portion of the facial nerve. The paralysis in the latter case came on suddenly. The outcome in this case is not mentioned, but the paralysis gradually subsided in the others described.

Organotherapy.—The research on fowls reported by Heredia seems to demonstrate that organotherapy acts merely as a substitution treatment. Continued too long, it checks the natural secretion of the organ in question, and this entails atrophy in time.

1: 965-1044 (May 13) 1926

*Infection with Gastric and Duodenal Ulcers. J. R. Goyena and J. Thenon.—p. 965.
Succession of Cancers with Long Interval. J. A. Gabastou.—p. 1010.
*Typhoid Skin Test. G. Rodríguez.—p. 1014.
Treatment of Small Hydronephrosis. R. Landivar.—p. 1018.
Knife Wound of Liver. Etchegoyen and Gorodner.—p. 1023.
*Some New Reagents and Reactions. M. I. Ygartúa.—p. 1024.
Changes in Leukocyte Count from Splenic Reflexes and Position in Regard to the Compass. J. Regnault.—p. 1031.
*Insulin in Eczema in Infants. E. Martínez Zuviría.—p. 1038.

Infection in Gastric and Duodenal Ulcers.—Goyena and Thenon state that in the sixty-six cases studied, the leukocyte count was above 8,000 in 56 per cent; 85 per cent of the patients had fever, and 48 per cent had both fever and high leukocyte count. In those without either, the signs of chronic adhesive peritonitis testified to the presence of infection, and perigastric inflammation was evident in certain others with moderate fever but no leukocytosis. Each case is summarized with much detail.

Skin Test for Susceptibility to Typhoid.—Rodríguez has found eight millions of bacilli the best dose for the intradermal test. He advocates it as a routine measure for soldiers vaccinated against typhoid, as it will reveal those still susceptible to typhoid, and enable revaccination in time. All those vaccinated a year before or who have had typhoid at any time, respond with a vigorous reaction. The allergy in these cases evidently represents a blending of immunity and hypersensitivity to protein.

Some New Reagents and Reactions.—Ygartúa describes a number of color tests useful in identifying a long list of drugs, including thymol, chlorides, bromides, sulphides, formic acid and menthol.

Insulin in Treatment of Eczema in Infants.—Martínez Zuviría has been much gratified by the improvement under insulin treatment of infants of the exudative diathesis type, with eczema or seborrhea, given systematic treatment with insulin.

1: 1045-1112 (May 20) 1926

*Vaccination Against Diphtheria. Tonina and Montanaro.—p. 1045.
Disability from Traumatic Bladder Lesion. Masciotra.—p. 1047.
Torsion of Pedicle of an Ovarian Cyst. N. C. Torres.—p. 1054.
Apparatus for Venesection. A. Astraldi.—p. 1055.
*Mosquito Prevalence Without Malaria. J. Alessandrini.—p. 1056.
Case of Intestinal and Urinary Amebiasis. J. R. Goyena.—p. 1075.
Classification of Constitutional Physical Types. F. Frassetto.—p. 1087.
One or More Types of Malaria Parasite? Marchoux.—p. 1091.

Immunization Against Diphtheria.—Tonina and Montanaro have been applying the Schick test year by year in a certain school for weakly children. The first year they obtained a positive response in 62 per cent; the second year in 48 per cent, and the third year in 34 per cent of 372 children. They immunized with toxin-anatoxin this last year, and found the technic simple and the reaction restricted to a diffuse inflammation of the forearm and rise in temperature for two or three days, not keeping the child out of school for more than a day at most. They are now studying year by year the duration of the immunity acquired.

Anophelism Without Malaria.—Alessandrini's study of the reclaimed marshes in Italy suggests the possibility that the larvae of the mosquitoes become biologically altered by the more hygienic conditions of their new habitat. Although the number of mosquitoes is not materially lessened, yet they become more resistant, and no longer serve as intermediate hosts for the malaria parasites. The anophelism persists, but the malaria menace is growing less.

Siglo Médico, Madrid

77: 509-532 (June 5) 1926

*Phototherapy for the Eye. A. Castresana.—p. 509.
Syndrome After Skull Trauma, Suggesting Prefrontal Lesion. S. Rubiano Herrera.—p. 512. C'cn.
The Fight Against Tuberculosis in Spain. J. Huerta Peña.—p. 516.

Phototherapy of Certain Ocular Affections.—Castresana uses an arc light, and reports the subsidence of tuberculous nodular keratitis in two cases under thirty-five to forty-two exposures. Also the cure of tuberculous sclerokeratitis in three cases, and the disappearance of a tuberculoma in one case. Two patients were much improved of five with advanced tuberculous uveitis, and tuberculous iridochoroiditis disappeared completely in another patient, vision increasing from 1/10 to 1/3. Tuberculin treatment was usually given at the same time. The results of phototherapy were particularly good in recurring hemorrhage in the vitreous in the young. A tuberculous origin is probable in the cases thus benefited; the blood was rapidly reabsorbed and vision restored to what it had been before the hemorrhage.

Beiträge zur klinischen Chirurgie, Berlin

136: 385-580, 1926

Cerebellopontile Angle Tumors. E. Heymann.—p. 385.
*Surgery of the Sympathetic Nervous System. E. Hesse.—p. 429.
Histology of Experimental Pseudarthrosis. A. Schmidt.—p. 463.
Porotic Malacia Following Biliary Fistulas. E. Seifert.—p. 496.
*The Electrocardiogram in Sympathectomy. M. Mandelstamm.—p. 499.
Multiple Enchondromas. W. Wollner.—p. 506.
*Surgery of Intestinal Tuberculosis. F. Fuchs.—p. 514.
Dislocation of Proximal Phalanx of the Finger. R. Proske.—p. 528.
Posterior Rectopexy in Rectal Prolapse. S. S. Kusmin.—p. 544.
*Roentgen-Ray Treatment of Inflammations. A. Lukowsky.—p. 554.
*Malignant Tumors of the Bladder. L. Simon.—p. 565.
*Late Results of Operations for Torticollis. J. Nussbaum.—p. 573.

Surgery of the Cervical, Thoracic and Abdominal Segments of the Sympathetic Nervous System.—Hesse has performed extirpation of the cervical and thoracic segments of the sympathetic system twenty-nine times. The nerve was removed from the superior ganglion to the stellate and first or second thoracic ganglion inclusively. He discusses briefly a multiplicity of conditions for which the operation has been performed. In angina pectoris it rests on a firm anatomical and physiological basis, and is justified when all internal methods have been exhausted. A review of the literature shows that it is too early to form a definite judgment on its value in bronchial asthma, but it appears to him that the decision will be unfavorable. Horner's syndrome follows all cases of high sympathectomy.

The Electrocardiogram with Unilateral and Bilateral Sympathectomy.—Mandelstamm found no differences in the electrocardiograms made before and after removal of the sympathetic ganglions in two cases of angina pectoris and six of bronchial asthma.

Surgery of Intestinal Tuberculosis.—Fuchs reviews the cases of tuberculosis of the intestine seen in Hochenegg's clinic from 1904 to 1925. There were 116 patients; eighty-seven were operated on. In the majority of the patients the symptoms were those of chronic ileus. In sixty-one cases the operation was for stenosis. Unilateral ileocecal resection was performed twelve times, with successful results of from two to nine years' standing in seven patients, and one death. Total exclusion of the intestine was carried out on thirteen patients with three lasting successes. The twenty-nine entero-anastomoses gave five successes of from two to twenty years. The total mortality of operations for intestinal stenosis was twelve cases. Total exclusion brought about improvement of the local process in all. The initial symptoms of intestinal tuberculosis may be identical with those of acute or chronic appendicitis.

Roentgen-Ray Treatment of Inflammations.—Out of 123 cases of inflammation treated by the roentgen ray, Lukowsky saw surprisingly rapid healing in fourteen, more rapid healing than was otherwise to be expected in fifty-seven, no advantage in point of time of healing in fifteen, and no improvement in a group of thirty-seven cases. The conditions governing success or failure are not yet clear. The virulence of the infecting organism seems to be of importance here. The best results were obtained in furuncles and carbuncles, inflammation of the inguinal glands, abscesses of the axillary glands and arthritis deformans. Pain was relieved and the general condition improved in many cases. The dose used was 10-20 per cent of the erythema dose, filtered through 0.5 mm. zinc and 1 mm. aluminum. Tendon sheath processes, felons, deep seated soft parts abscesses, and chronic osteomyelitis with sequestra did not respond well.

Treatment and Prognosis of Malignant Tumors of the Bladder.—Of fifty patients with carcinoma of the bladder operated on in Simon's clinic from 1916 to 1923, twenty-four are alive, twenty-six have died. Of the latter, a radical operation was impossible in twelve. One half of those surviving have lived longer than five years. However, Simon has seen patients die of local recurrence seven, ten and twelve years after operation. In eighteen of those still living, one operation sufficed; in six repeated resections or electrocoagulations were necessary. The prognosis is much better for a papillomatous than for an infiltrating tumor. Every suspicious tumor should be treated as malignant. He employs electrocoagulation on all small, pedunculated, apparently benign tumors. For malignant tumors, he resects the bladder wall; resection of the mucosa alone is not sufficient. He operates extraperitoneally, if possible. The power of regeneration of the human bladder is very great. He cites a personal case in which all but the trigonum and ureteral openings with a margin 1 cm. wide was removed; in six months the capacity of the bladder was 200 cm.; at the end of two years 300 cm. Total excision should rarely be performed.

Late Results of Operations for Torticollis.—The experience of the Göttingen University clinic is that the transverse skin incision immediately above the clavicle gives the best cosmetic results. Of forty-seven patients reexamined by Nussbaum, an entirely satisfactory functional result was achieved in thirty-six. Of forty who presented facial asymmetry before operation, asymmetry was still present in sixteen; the result in this respect appeared to be independent of age at

operation. Of forty-five patients who had scoliosis before operation, thirty-three still showed it in greater or less degree. Experience with the wearing of a correcting apparatus versus early physical exercises indicate that the former favors a correct position of the head, while the latter is best for straightening the spine. The two should therefore be combined.

Beiträge zur Klinik der Tuberkulose, Berlin

63: 385-630 (May 20) 1926

Surgery of Pulmonary Tuberculosis. H. Alexander.—p. 388.
Gas Metabolism in Tuberculosis. E. Brieger.—p. 403.
Habitual Hyperthermia. K. Brünecke.—p. 412.
General Symptoms in Tuberculous Children. C. Coerper.—p. 419.
*Surgery of Pulmonary Tuberculosis. H. Deist.—p. 424.
Tuberculosis of Lungs and Larynx. Giercke.—p. 436.
Chemotherapy of Tuberculosis. E. Guth.—p. 444.
*Prognosis of Exposed Infants. Harms and Seitz.—p. 461.
*Tuberculosis of the Third Degree. Harms and Wangrin.—p. 467.
Lime Foci in Adults. Ickert.—p. 483.
Water Wheel Murmur in Pneumothorax. F. Junker.—p. 497.
Open and Closed Tuberculosis. J. E. Kayser-Petersen.—p. 503.
Specific Treatment. K. Kerssenboom.—p. 515.
The Children of the Tuberculous. G. Klostermann.—p. 523.
Frequency in China Workers. F. Kreuser.—p. 530.
Unilateral Pulmonary Cirrhosis. W. Kühl.—p. 539.
Roentgen Irradiation of the Spleen. A. Neddermeyer.—p. 555.
Fat Gain in Tuberculosis. G. Pohl-Drasch.—p. 564.
Infraclavicular Infiltrates. F. Redeker.—p. 574.
Tuberculosis and Trauma. J. Ritter and W. Gerlach.—p. 601.
Copper Treatment of Tuberculosis. J. Ritter and G. Pohl.—p. 606.
Sanocrysin Treatment. Sachs.—p. 619.
The Primary Focus in the Lung. O. Wiese.—p. 622.
Pneumothorax on Both Sides. W. Schultz.—p. 627.

Complications in Surgery of Pulmonary Tuberculosis.—Deist observed aspiration pneumonia in one case of Sauerbruchs' thoracoplasty, and in two cases of exeresis of the phrenic nerve. The apex is ventilated chiefly by the diaphragm. The secretion accumulates and, because of the paralysis of the diaphragm, it may be forced into the healthy lung by a deep inspiration, especially if the patient has pains.

Prognosis of Exposed Infants.—Harms and Seitz found nearly 60 per cent infected of 129 infants and children exposed to tuberculosis. The infection occurred in 87 per cent of them in the first year of life. The tuberculosis proved fatal in 12.4 per cent of them (7.75 per cent of these died in infancy). The mortality was 23.9 per cent among the children infected during infancy. Tuberculous meningitis was the usual cause of death.

Duration of Tuberculosis of the Third Degree.—Harms and Wangrin estimate the average duration of chronic tertiary pulmonary tuberculosis from the first symptoms to death as four years and about two months. The grave pulmonary process itself lasts about two years. Hospital treatment may double this term.

Deutsche Zeitschrift für Nervenheilkunde, Leipzig

91: 1-160 (April) 1926

Syndromes from the Cerebral Ventricles. M. Rosenfeld.—p. 1.
Compulsive Movements in Hemiplegia. Schuster and Pineas.—p. 16.
Chloromas of the Dura. H. Rothschild.—p. 57.
Ataxia and the Posterior Columns. H. Stein.—p. 77.
*The Prognosis in Syphilis. R. Schmidt.—p. 128.

The Prognosis in Syphilis with Primary Negative Cerebrospinal Fluid.—Schmidt has investigated, years later, 155 cases in which at the first examination of the cerebrospinal fluid—before any treatment, or five years after the last treatment—the fluid had responded negatively to tests. At the later examination the response was still negative, in those tested, and there were no symptoms suggesting neurosyphilis in the seventy-one that had shown no neurologic symptoms at the first examination. In the fifty-seven that had presented signs of neurosyphilis, at first, the disease had not progressed. Of the twenty-seven with symptoms suggesting tabes at the first examination, only one had developed typical tabes, and in this case its hereditary nature was probable. The others presented only one or a few symptoms years later, and in some they were less severe than at first. A primarily negative cerebrospinal fluid thus has an important bearing on the prognosis later.

Klinische Wochenschrift, Berlin

5: 1065-1112 (June 11) 1926

Gastric Neuroses. G. Katsch.—p. 1065.
*Tophi and Gout. F. Gudzent.—p. 1069.
Disintegration of Tissue. W. v. Gaza.—p. 1072.
Insulin in Children. R. Priesel and R. Wagner.—p. 1076.
*Serodiagnosis of Tuberculosis. Neuberg and Klopstock.—p. 1078.
*Vital Staining of Erythrocytes. A. Cohn.—p. 1079.
*A Placental Endocrine Gland. S. Loewe and Voss.—p. 1083.
Proteus Bacilli. F. Neumann.—p. 1085.
Blood Pressure After Movements. E. Adler.—p. 1086.
"Work and Hyperthyrosis." L. Asher.—p. 1088.
Anaerobic Culture of Cholera Vibrio. J. Hirsch.—p. 1089.
Toxicology of Cyanamide. S. Glaubach.—p. 1089.
Antagonism of Trypanocides. R. Schnitzer.—p. 1090.
Cerebrospinal Fluid in Infants. A. Mader and S. Sänger.—p. 1090.
Tuberculosis and Cancer of Lungs. Hochstetter.—p. 1091.
Pes Valgus. H. Schulze-Gocht.—p. 1092.
Medicine in New Legislation. H. Zangger.—p. 1095.
Roentgen Teleangiectasias. F. Franke.—p. 1111.
Tryparsamide. R. Freund.—p. 1111.

Tophi and Gout.—Gudzent denies the causal connection between uric acid and the attack of gout. The tophi form and disappear sometimes without any subjective sensations. The acute attack of gout seems to be of allergic nature, and is induced by individually different elements of the food. One of his patients tolerated a synthetic alcoholic beverage although he could produce an attack by drinking a certain brand of champagne. The purin-free diet is not the last word in gout. The allergens are more important.

Serodiagnosis of Tuberculosis.—Neuberg and Klopstock dissolve tubercle bacilli by a 20 per cent solution of sodium benzoate. The antigen thus obtained seems to be as good as any other, without requiring a complicated preparation.

Vital Staining of Erythrocytes.—Cohn found supravital staining of blood a better aid in diagnosis of lead poisoning than the regular stain for basophilic stippling. He made parallel investigations on supravital staining, the presence of nucleated erythrocytes and the oxygen consumption of the blood. The results were frequently divergent—for instance, a low oxygen consumption in spite of the presence of normoblasts and a high oxygen consumption with a low percentage of supravitally stained erythrocytes.

A Placental Endocrine Gland.—Loewe and Voss discuss the significance of the high concentration of estrual hormone in the placenta. It is known that it is almost absent from the ovary during pregnancy. They point out that the overproduction of the hormone in the regular way would entail many undesirable effects in pregnancy, such as lactation, extreme hypertrophy of the breasts, hypererotization and other phenomena. A hormone produced in the placenta may act chiefly locally on the uterus. Their experiments (injection of the hormone in oil into one horn) demonstrate such a possibility.

Münchener medizinische Wochenschrift, Munich

73: 977-1016 (June 11) 1926

*Seasickness and Air-Sickness. O. Bruns.—p. 977.
Immunization in Syphilis. Hilgermann.—p. 979.
Postencephalitic Sleep Disturbances. G. Stiefler.—p. 981.
*Hyperventilation Migraine. O. Muck.—p. 982.
*Hysteria, Hyperpnea, Epilepsy. J. Lange and E. Guttmann.—p. 983.
Scarlet Fever Antiserum. K. Ochsenius.—p. 984.
Ectopic Pregnancy. J. Koerner.—p. 985.
Treatment of Hemophilia. H. v. Samson-Himmelstjerna.—p. 986.
*Diagnosis of Duodenal Ulcer. K. Trommer.—p. 989.
Tonsillectomy. O. Kessel.—p. 991.
"Etiology of Haff Disease." H. Selter.—p. 993.
Nephritis Uremia. C. R. Schlayer.—p. 995.
Thefts in Sanatoriums. F. Riss.—p. 998.
Typhoid in Prussia. Rimpau.—p. 998.

Prevention of Seasickness and Air-Sickness.—Bruns easily elicited the symptoms of seasickness by using Bárány's chair. He recommends a meal and a barbital sedative half an hour before the voyage begins. A horizontal position on deck near the center of the ship is advantageous. The stomach should contain some food all the time. Another dose of barbital may be given in five hours, and a third the next morning. If seasickness develops in spite of this, an injection of 1 mg. of atropine sulphate and slight constriction of the neck or a broad tight abdominal belt may help.

Hyperventilation Migraine.—Muck induced an attack of migraine in twenty-seven migraine patients by forced deep breathing.

Hysteria, Hyperpnea, Epilepsy.—Lange and Guttmann conclude that hysterical attacks may become pacemakers for a true epileptic seizure, because they are usually associated with hyperpnea.

Diagnosis of Duodenal Ulcer.—Trommer uses the duodenal tube for diagnosis of ulcers of the duodenum. With an ulcer, the contents are acid; there is a considerable amount of mucus, some leukocytes, and more albumin in the first fluid than in that produced by infusion of dextrose. Small quantities of blood are usually present. The liver function is normal. With a carcinoma of the pylorus, the blood may be hemolyzed and the duodenal contents are alkaline.

Wiener klinische Wochenschrift, Vienna

39: 709-740 (June 17) 1926

Treatment of Peptic Ulcer. A. Eiselsberg.—p. 709. C'td.
*Cholecystography. K. Presser.—p. 713.
Epidemic Encephalitis and Epilepsy. C. Triminakis.—p. 717.
*Duodenal Fluid After Splenectomy. D. Simici and D. Popesco.—p. 718.
*Colloidal Gold Test. T. Ehmer.—p. 719.
Tuberculosis Sanatoriums. A. V. Frisch.—p. 720.
Respiratory Sounds. A. Winkler.—p. 723. C'cn.
Gastric Achylia. W. Zweig.—p. 726.
Basal Metabolism in Research on Specific Dynamic Action of Foods. H. Schur. Supplement.—pp. 1-30.

Cholecystography.—Presser discusses the advantages of the administration of the contrast substance by the mouth or by the vein. The former method is to be recommended in outpatients and is sufficient if the shadow of the gallbladder appears to be normal.

The Duodenal Fluid After Splenectomy.—Simici and Popesco examined the duodenal fluid from a man whose spleen had been removed because of abdominal trauma. The bilirubin concentration of the duodenal fluid, shortly after the splenectomy, was only about one seventh of the normal. The Meltzer-Lyon test did not induce any change in the color. Three months later the bilirubin content was normal, and the Meltzer-Lyon test positive.

Colloidal Gold Test.—Ehmer confirms Krebs' investigations on the importance of the hydrogen-ion concentration (optimum p_H 6.2 according to Mayr) of gold sols. She publishes her way of preparing the colloidal gold solution for the test.

Zeitschrift für Immun. u. exp. Therap., Jena

47: 1-96 (April 8) 1926

*Nature of the Bacteriophage. W. Gohs.—p. 1.
Complement Fixation in Rabbit Trypanosomiasis. Chu-jen Ku.—p. 17.
Agglutination of Enterococci. K. Meyer and H. Löwenstein.—p. 39.
Hemagglutinins in Plants. M. Eisler and L. Portheim.—p. 59.
Stain for Spirochetes in Sections. J. Lukeš and V. Jelinek.—p. 83.
No Activation of Quinine by Lipoids. W. N. Asbelew.—p. 89.

Nature of the Bacteriophage.—Gohs explains anaphylaxis on the basis of ferment action. The cell ferments are diverted from their normal functions owing to adsorption by the parenterally introduced substance, and the result is an acute shock or chronic toxic action from the products of disintegration. Anaphylaxis can be induced not only by antigens but by substances like kaolin, which adsorb the cell ferments. He presents arguments to show that the d'Herelle phenomenon of bacteriophagy is anaphylaxis in bacteria.

Klinicheskaya Meditsina, Moscow

4: 81-123 (March) 1926

Disturbances of Digestion and Nutrition in Infants. S. Fedynsky.—p. 81.
Postoperative Gastrocolonic Fistula. H. Strauss.—p. 85.
Anaphylaxis a Physical-Chemical Process. L. Zilber.—p. 86.
Classification of Joint Affections. A. Kessler.—p. 89.
*Drop-Wrist Percussion. B. Egoroff.—p. 91.
Syphilis of the Stomach. A. Seltsovsky.—p. 92.
*Action of Blood Serum on Hemolysins. R. Antonova.—p. 96.
Secretory Activity of the Pancreas. R. Antonova.—p. 98.
Lambliasis of the Duodenum. A. Belaeff.—p. 102.
Etiology of Extra-Uterine Pregnancy. S. Kisin.—p. 104.
*Operations on Nerves for Cancer. N. Samarin.—p. 105.
Functional Rehabilitation in Motor Disturbances. Verboff.—p. 108.

Drop-Wrist Percussion as Adjuvant in Outlining the Stomach.—The percussion is performed by tapping lightly on the relaxed abdomen with the joined tips of the four fingers. The blows are sharp and short, the wrist completely relaxed, the wrist rebounding to a right angle immediately after each stroke. With this method, splashing and tympany are easily heard over the stomach. At the same time, the palpating fingers as well as the whole wrist perceive a special sensation resembling that from an air cushion. The elasticity differs from that over the intestine. The percussion starts above the pubis, and is gradually continued to the epigastrium, and over Traube's space. The patient is, of course, reclining. An illustration shows the exact technic. This percussion, affording a combination of auditory and tactile impressions, may help, Egoroff says, more than any other in determining the exact size and position of the stomach.

Inhibiting Action of Blood Serum on Autohemolysins of Duodenal Juice.—Antonova studied the action of 112 human blood serums on the duodenal contents from man or dogs. The serums belonged to patients chiefly with stomach disease, or with infections, such as relapsing fever or malaria. There was evidence that blood serum has an inhibiting action on the autohemolysins of the duodenal juice and the pancreatic juice. The inhibiting property was reduced in inactivated serums. The degree of the antihemolytic action of the serums seemed to vary somewhat in different affections. It was notably pronounced in acute infectious diseases.

Molotkoff's Neurotomy and Radicotomy for Malignant Tumors.—Molotkoff's method is based on the theory that cancer may be due to trophic disturbances, and that the seat of the trophic nerves is in the posterior roots and sensory nerves. Therefore, the operation consists in severing the corresponding roots or nerves. Samarin applied this "biologic surgery" in sixteen cases of cancer. Direct removal of the tumor was impossible. In eleven, the cancer was in the esophagus. The results were negative in all, except that severing the vagus sometimes facilitated swallowing in patients with malignant stricture of the esophagus.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 2833-2936 (June 26) 1926

Liver Abscess After Appendicitis. P. M. de Planque.—p. 2834.
*Tumor in the Mandible. J. G. Schuiringa and P. R. Michael.—p. 2838.
*Masked Jaundice with Duodenal Ulcer. A. Haak.—p. 2849.
*Blood Groups of Cancer Subjects. S. G. T. Bendien.—p. 2856.
*Research on Twins. P. J. Waardenburg.—p. 2859.
Three Cases of Tetanus with Recovery. Huese.—p. 2868.
Case of Weil's Disease Without Jaundice. Lampe.—p. 2870.
Transplantation of the Urethra into the Anal Sphincter in Case of Total Incontinence from Epispadias. Schouten.—p. 2929.

Treatment of Tumors of the Mandible.—Schuiringa and Michael describe three cases, with illustrations, which demonstrate the advantages of refraining from the use of the customary temporary rubber prosthesis at once after resection of the bone of the lower jaw. Instead of this, they apply a device to form an inclined plane on which the upper teeth slide. This counteracts the tendency to retraction and further deformity. When conditions do not allow this, a simple prosthesis attached with springs to the upper teeth, with cheek protectors, answers the purpose.

Masked Jaundice with Duodenal Ulcer.—Haak applies this term to conditions with high bilirubin content in the blood serum although there is no visible jaundice. His experience with the cases described suggests that with severe and recurring pain in the right upper abdomen and high urobilinuria, the gallbladder should not always be incriminated; the possibility of a duodenal ulcer should be borne in mind, especially if there is much bilirubin in the serum. One of these patients six months before had had a three weeks' attack of frank jaundice. In five other cases of duodenal ulcer, the bilirubin content of the serum was within normal range. In another case, the woman, aged 42, had had recurring attacks of pain. They came on suddenly at night in the stomach region, spreading to the right side. The appetite was good and the pain did not seem to be connected with the meals. This condition continued for years, gallstone disease being assumed.

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Then came a severe melena which suggested a duodenal ulcer as responsible for the disturbances. In one of his operative cases, the bilirubin content of the serum was 1.44 before the operation and 1.1 five months later. No signs of gallstones or obstruction were discovered. The chloroform at the operation seemed to have depressed liver function, as there were symptoms of hepatic insufficiency for ten days. Haak accepts this as a warning to give dextrose by the vein or rectum before any intervention in cases with bilirubinemia from any cause.

Blood Grouping of Cancer Patients.—Bendien reports that among 110 cancer patients examined, 17.3 per cent belonged to Moss' group I (Jansky IV); 42.7 per cent to group II; 16.4 per cent to group III, and 23.6 per cent to group IV (Jansky I). Compared with Weitzner's figures, and with the normal 5 per cent in Jansky Group IV and with the normal 45 per cent in Jansky group I, a certain predisposition to cancer of certain groups is suggested, if confirmed by a larger material.

Research on Twins.—Waardenburg often found the finger prints so closely alike in his research on twenty-five pairs that he was able by this alone to distinguish between the univitelline and the bivitelline twins. On the other hand, it is not always possible to tell from the fetal membranes whether there was one ovum or not. In one pair of twins with striking resemblance, one had nystagmus, the other not. The parents were normal in this respect but the mother's grandmother had had nystagmus. In another pair of identical twins, one had numerous nevi, including a huge hairy one on the back, while the other had no appreciable nevi. Another pair both present squint, but one in the right, the other in the left eye. Two twin girls, now aged 14, have a gap in the row of upper teeth, alike in both but on different sides.

Acta Obstet. et Gyn. Scandinavica, Helsingfors

4: 249-420, 1926

Relative Weight of Fetus and Placenta. H. Westermark.—p. 249.
Ileus After Cesarean Section. P. Häggström.—p. 286.
*Treatment of Melena in the New-Born. P. Wetterdal.—p. 337.
Treatment of Chronic Adnexitis. F. Holtz.—p. 347.
*Influence of Age on Labor. G. Lundh. Supplement.—pp. 1-151.

Treatment of True, Idiopathic Melena in the New-Born.—Wetterdal found a record of 47.4 per cent mortality in the fifty-seven cases in which treatment was only symptomatic, in the last twenty years in two Stockholm maternities. It was 28.5 per cent in the eighty-four cases in which gelatin was injected; 14.3 per cent in the twenty-one with transfusion of blood, and also in the fourteen in which both transfusion and gelatin were used. From one to seven injections of gelatin were given, and twenty-seven died of the sixty-three thus treated. The experiences related emphasize the necessity for prompt measures, and the advantage of beginning with transfusion and following with gelatin. Feeding does not seem to aggravate the bleeding, and it should be kept up, and dehydration combated.

Elderly Primiparas. — Lundh's analysis of 7,000 first deliveries, 1900-1922, confirms that the duration of labor increases progressively after the age of 25. Complications become more frequent, especially eclampsia, but the age of the mother does not seem to influence the size or sex of the children. Twin pregnancies were more common with advancing age. The morbidity and mortality of the infants were also higher.

Hospitalstidende, Copenhagen

69: 413-436 (May 6) 1926

*Cystoid Pneumatosis of the Intestine. E. Holm.—p. 413.
*Radon Treatment. H. Jansen.—p. 429. C'cn.—p. 437.

Gas Cysts in the Intestines.—Holm remarks that it is more than a coincidence that cystoid pneumatosis has been associated with gastric or duodenal ulcer in more than half of the known cases. In other cases, gastric cancer, tuberculous peritonitis or gastro-enteritis brought the patients to the physician. He reiterates the warning to refrain from a direct radical operation on the pneumatosis, as it is liable to subside completely spontaneously, or after a laparotomy for other cause, or mere exploration. The prognosis is thus good as a rule, although if the cysts are large, there may be stenosis. In Faltin's case, the segment of the intestine most affected was excluded, thus curing dyspeptic disturbances of ten years' standing with symptoms of stenosis toward the last. Two weeks later the abdomen was opened to complete the resection, and the entire crop of cysts had disappeared. In Urban's case, the peritoneum kept filling with air, which had to be tapped for two months, but then all symptoms disappeared and the boy, aged 13, has developed normally since. The majority of these patients are middle-aged men.

Radium Emanation Treatment.—Jansen reports that 120 patients were treated in the Emanatorium in 1923-1925, with improvement in 60 per cent, predominantly of a subjective nature. It was especially striking in 67.5 per cent of the forty neurasthenics, and in thirteen of the fourteen patients with gout. He emphasizes that emanation treatment is merely an adjuvant. There was a decided transient reaction at first in almost every case, the symptoms growing temporarily worse. This testified against the effect being due merely to suggestion. Only three showed any benefit in the fourteen with cardiovascular disease, but 65.5 per cent were improved of the sixty-one with joint or muscular affections.

69: 461-484 (May 20) 1926

*Treatment of Roentgen-Ray Injury of the Skin. A. Reyn.—p. 461.

Finsen Light Treatment of Roentgen-Ray Injuries of the Skin.—Reyn has found the Finsen concentrated arc light effectual in treatment of roentgen-ray ulcerations, atrophy and other forms of injury from these rays. In his twenty-one cases the lesions had been absolutely rebellious to all other measures. Four patients did not complete the course (including two with advanced rectal cancer), but thirteen of the other seventeen were cured. Three are still under treatment, and in one case the lesion was resected into sound tissue with plastic repair. The mercury vapor light seemed to aggravate the lesions, but under the Finsen light they healed, the skin smooth and elastic. The interval since is eleven years in one case. The roentgen exposures had been given for eczema, nevus, menorrhagia or after an operation. In some of the patients the ulceration had developed at once, in others not until long after. The Finsen course has to be cautious and long.

Ugeskrift for Læger, Copenhagen

88: 577-596 (June 17) 1926

*Gastric Achylia. K. Faber.—p. 577.
Coiling of Umbilical Cord Around Neck of Fetus. Harsting.—p. 581.
Whooping Cough Vaccine. S. E. Kofoed.—p. 585.
Zinc Chloride in Treatment of Lupus. Rendtorff.—p. 588.

Etiology and Pathogenesis of Gastric Achylia.—Faber presents an array of evidence to prove that the gastric mucosa and secretory apparatus respond to infections and intoxications like other parenchymatous organs, especially the kidneys and the liver. These practically exogenous causes are observed so often and in such variety, that there is no need to call on a constitutional, congenital or nervous basis. The recuperation of function by the gastric glandular system in certain cases, with subsidence of the achylia, disproves the assumption of atrophy. The gastritis responsible for the achylia is not a mere catarrhal affection; it is disease of the gland parenchyma and of the parenchyma of the entire stomach. The ability to recuperate is most pronounced in the young, and it grows less not only with advancing age but with the duration of the gastritis. His microscopic studies of normal stomachs with achylia showed a tendency in the stomach epithelium to become transformed to an intestinal type; this was pronounced in 75 per cent while nothing of the kind was apparent in twelve normal stomachs examined. Experiments on animals showed that it is possible to influence the functioning of the gastric glands and induce achylia by isolating the stomach from its innervation, but the achylia was always transient; chronic achylia could not be induced by this means. On the other hand, it proved possible to induce chronic achylia by irritating the mucosa with alcohol or with diphtheria toxin by the vein or other exogenous injurious agent.